182

Chemical Tricks

BY

[illegible]

Printed and Published [illegible]

[illegible]

[illegible]

To

Her Highness

SEETHA VILAS,

Maharani of Mysore.

Whose Exalted Virtues,

And Queenly Benevolence,

Are the Admiration of

THE AUTHOR,

This Book is Respectfully

Dedicated.

CONTENTS.

PAGE.

PAGE.

BALLOON,

The Artifical Balloon.

Take a bladder containing only a small quantity of air, and a piece of lead to it, sufficient to sink it, if immersed in water. Put this apparatus into a jar of water, and place the whole under a receiver. Then exhaust the air, and the bladder will expand, become a balloon lighter than the fluid in which it floats, and ascend, carrying the weight with it.

The Mode of Constructing and Filling Balloons.

The best forms for *Balloons*, are those of a globe, and an egg-like figure. Fire-*balloons*, or those raised by heated air, if very large, may be made of linen, or silk, and must be open at the bottom, having a hoop round the opening, from which is suspended the grate for the fuel, which is best of straw, or other light combustibles. Small

Balloons of this kind may be made of tissue paper, having a wire round the bottom. Two cross wires may support in the centre of the opening a little cup, with some cotton and spirits of wine, the flame of which will rarefy the air, and raise the machine. Large *Balloons* for inflammable air, must be made of silk, and varnished over, so as to be air-tight. To the upper part of the *Balloon* there should be fitted a valve, opening inwards, to which a string should be fastened, passing through a hole made in a small piece of wood, fixed in the lower part of the *Balloon*; so that the aeronaut may open the valve when he wishes to descend. The action of the valve is effected by a round brass plate, having a hole about two or three inches diameter: on the inside there is a shutter of brass, covered also with leather. which serves to close the hole; it is fastened to the leather of the plate, and kept against the hole by a spring. To the lower part of the *Balloon* a pipe is fixed, made of the same materials with the *Balloon*, which serves it to fill it by. The car or boat, is made of wickerwork, covered with leather, and well varnished, or painted, and is suspended by ropes proceeding from the net, which goes over the *Balloon*. This netting should cover the upper part, and come down to the middle, with various

cords proceeding from it to the circumference of a circle about two feet below the *Balloon*. From that circle may other ropes go to the edge of the boat. This circle may be made of wood, or of several pieces of slender cane, bound together The meshes of the net should be small at top (against which part of the *Balloon* the inflammable air exerts the greatest force) and increase in size as they recede from the top. The inflammable air for filling the *Balloon*, is procured by putting a quantity of iron-filings, or turnings, with some oil of vitriol diluted with water, into casks lined with lead. From the top of these casks, tin tubes proceed, which unite into one that is connected with the silk tube of the *Balloon*. *Ballōons* cannot be made smaller than six feet in diameter, of oiled silk, as the weight of the material is too great for the air to buoy it up. They may be made smaller, of thin strips of bladder, or other membrane, glued together. The best for this purpose is the allantois of a calf, which is the membrane enclosing the fœtus in the womb. with this they may be made eighteen inches in diameter.

Paper Balloon.

Take several sheets of silk paper; cut them

in the shape of a spindle; or to speak more familiarly, like the coverings of the sections of an orange; join these pieces together, into one spherical or globular body, and border the aperture with a ribbon, leaving the ends, that you may suspend from them the following lamp:

Construct a small basket of very fine wire, if the balloon is small, and suspend it from the aperture, so that the smoke from the flame of a few leaves of paper, wrapped together, and dipped in oil, may heat the inside of it. Before you light this paper, suspend the balloon in such manner, that it may, in a great measure, be exhausted of air, and as soon as it has been dilated, let it go, together with the wire basket, which will serve as ballast.

A small Balloon.

It is an interesting and amusing experiment to inflate a small balloon made of gold-beater's skin, (using a little gum-arabic to close any holes or fissures) filling it from a bladder or jar, and tying a thread round the mouth of it to prevent the escape of the gas.—When fully blown, attach a fanciful car of coloured paper, or very thin patesboard to it and let it float in a large room; it will soon gain the celling, where it will remain

for any length of time: if it be let off in the open air, it will ascent out of sight. This experiment may be varied, by putting small grains of shot into the car, in order to ascertain the difference between the weight of hydrogen gas and atmospheric air.

Eatable Candle Ends.

Peel some large apples that are rather of a yellow tint, cut several pices out of them in the shape of candle ends, round of course at the bottom and square at the top; in fact as much as possible like a candle that has been burnt down within an inch or so. Then cut some slips out of the insides of sweet almonds, fashion them as much in the shape of spermaceti wicks as you can, stick them into your mock candles, light them for an instant, so as to make their tops black, blow them out again, and they are ready for use. When you produce them, light them, (the almond will readily take fire, and flame for a few moments) put them into your mouth, chew and swallow them one after another. This may well be called the juggler's dessert.

The detonating Candle.

Take about a third part of a grain of fulminating silver, and put in into the wick of a candle, which is to be burned by the person you wish to surprise. When the flame reaches the powder, it will immediately explode with a stunning report. Similar tricks may be played by placing the silver in a pair of snuffers, boots, shoes, walking-stick, &c.

A fair Lady.

It is well known that white oxide of bismuth, under the name

of pearl which is used as a cosmetic by those of the fair sex who wish to become fairer. A lady thus painted was sitting in a lecture room where chemistry being the subject, water impregnated with sulphuretted hydrogen gas (Harrogate water) was handed round for inspection. On smelling this liquid, the lady in question became suddenly black in the face. Every one was of course alarmed at this sudden chemical change; but the lecturer explaining the cause of the phenomenon, the lady received no further injury than a salutary practical lesson to rely more on mental than personal and artificial beauty in future.

The Well of Fire.

Add gradually one ounce, by measure, of sulphuric acid, to five or six ounces of water in an earthenware basin; and add to it also gradually, about three quarters of an ounce of granulated zinc. A rapid production of hydrogen gas will instantly take place. Then add, from time to time, a few pieces of phosphorus of the size of a pea. A multitude of gas bubbles will be produced, which will fire on the surface of the effervescing liquid; the whole surface of the liquid will become luminous, and fire balls with jets of fire will dart from the bottom through the fluid with great rapidity and a hissing noise.

The Exploding Bubble.

If you take up a small quantity of melted glass with a tube, the blow of a common tobacco pipe will do, and let a drop fall into a vessel of water it will chill and condense with a fine spiral tail, which being broken, the whole substance will burst with a loud explosion, without injury either to the party that holds it, or him that breaks it; but if the thick end be struck, even with a hammer, it will not break.

The Magic Picture.

Take two level pieces of glass (plate glass is the best) about three inches long and four wide, exactly of the same size; lay one on the other, and leave a space between them by pasting a piece of card, or two or three small pieces of thick paper, at each corner.

Join these glasses together at the edges by a composition of lime slaked by exposure to the air, and white of an egg. Cover all the edges of these glasses with parchment or bladder, except at one end which is to be left open to admit the following composition,

Dissolve by a slow fire, six ounces of hog's lard, with half an ounce of white wax; to which you may add half an ounce of clean linseed oil.

This must be pourd, in its liquid state, and before a fire, between the glasses, by the space left in the sides, and which you are then to close up. Wipe the glasses clean, and hold them before the fire, to see that the composition will not run out at any part.

Then fasten with gum a picture or print, painted on very thin, paper, with its face to one of the glasses, and if you like, you may fix the whole in a frame.

While the mixture between the glasses is cold, the picture will be quite concealed, but become transparent when held to the fire, and as the composition cools, it will gradually disappear.

The Tumbling Egg.

Fill a quill with quickselver, seal it at both ends with good hard wax; then have an egg boiled, take a small piece of the shell off the small end, and thrust in the quill with the quicksilver; lay it on the ground and it will not cease tumbling about so long as any heat remains in it: or if you put quicksilver into a small bladder, and blow it up, then warm the bladder, it will skip about so long as heat remains in it.

Invisible Ink.

Dissolve green vitriol and a little nitrous acid in common water. Write your characters with a new pen.

Next infuse small Aleppo galls, slightly bruised, in water In two or three days, pour the liquor off.

By drawing a pencil dipped in this second solution over the characters written with the first, they will appear a beautiful black.

The Magicl Tea-Spoon.

Put into a crucible four ounces of bismuth, and when in a state of fusion, throw in two ounces and a half of lead, and one ounce and a half of tin: these metles will combine, forming an alloy, fusible in boiling water. Mould the alloy into bars, and take them to a silversmith's to be made into tea-spoos. Give one to a stranger to stir his tea, as soon as it is poured from the tee-pot; he will not be a little surprised to find it melt in his tea-cup.

The Silver Tree.

Dissolve an ounce of fine silver in three ounces of strong aqua fortis, in a glass bottle. When the silver is dissolved, pour the aqua fortis into another glass vessel (decanter will be best), with seven or eight ounces of mercury, to which add a quart of common water; to the whole add your dissolved silver, and let it remain untouched.

In a few days the mercury will appear covered with a number of little branches of a silver colour: This appearance will increase for a month or two, and will remain after the mercury is entirely dissolved.

The Lead Tree.

A more modern invention, and an easier method by far than the above is the following:

To a piece of zinc fasten a wire, crooked in the from of the worm of a still; let the other end of the worm be thrust through a cork. You then pour spring water into a phial or decanter, to which you add a small quantity of sugar of lead, thrust the zinc into the bottle, and with the cork at the end of the wire fasten it up. In a few days the tree will begin to grow, and produce a most beautiful effect.

Laughing Gas.

Take two or three ounces of nitrate of ammonia in crystals, and put it into a retort, then apply the heat of a lamp to the retort, taking care that the heat does not exceed 500 degrees. When the crystals begin to melt, the gas will be produced in considerable quantities. The gas may also be produced, though not so pure, by pouring nitric acid, diluted with five, or six times its weight of water, on copper filings or small pieces of tin. The gas is given out till the acid begins to turn brown; the process must then be stopped.

Laughing Gas.

Procure an oiled or varnished silk bag, or a bladder, furnished with a stop-cock; fill it with nitrous oxide, and after emptying the lungs of common air, take the stop-cock into the mouth, and at the same time hold the nostrils, and the sensation produced will be of a highly pleasing nature. A great propensity to laughter, a rapid flow of vivid ideas, and an unusual fitness for muscular exertion, are the ordinary feelings which it produces. The sensations produced by breathing this gas, are not the same in all persons, but they are always of an agreeable nature, and not followed by any depression of spirits, like those occasioned by fermented liquors.

Artificial Coral for Grottoes.

To two drachms of fine vermilion add one ounce of clear resin, and melt them together. Having the branches of twigs peeled and

Invisible Ink.

Dissolve green vitriol and a little nitrous acid in common water. Write your characters with a new pen.

Next infuse small Aleppo galls, slightly bruised, in water In two or three days, pour the liquor off.

By drawing a pencil dipped in this second solution over the characters written with the first, they will appear a beautiful black.

The Magicl Tea-Spoon.

Put into a crucible four ounces of bismuth, and when in a state of fusion, throw in two ounces and a half of lead, and one ouuce and a half of tin: these metles will combine, forming an alloy, fusible in boiling water. Mould the alloy into bars, and take them to a silver-smith's to be made into tea-spoos. Give one to a stranger to stir his tea, as soon as it is poured from the tee-pot; he will not be a little surprised to find it melt in his tea-cup.

The Silver Tree.

Dissolve an ounce of fine silver in three ounces of strong aqua fortis, in a glass bottle. When the silver is dissolved, pour the aqua fortis into another glass vessel (decanter will be best), with seven or eight ounces of mercury, to which add a quart of common water; to the whole add your dissolved silver, and let it remain untouched.

In a few days the mercury will appear covered with a number of little branches of a silver colour: This appearance will increase for a month or two, and will remain after the mercury is entirely dissolved.

The Lead Tree.

A more modern invention, and an easier method by far than the above is the following:

To a piece of zinc fasten a wire, crooked in the from of the worm of a still; let the other end of the worm be thrust through a cork. You then pour spring water into a phial or decanter, to which you add a small quantity of sugar of lead, thrust the zinc into the bottle, and with the cork at the end of the wire fasten it up. In a few days the tree will begin to grow, and produce a most beautiful effect.

Laughing Gas.

Take two or three ounces of nitrate of ammonia in crystals, and put it into a retort, then apply the heat of a lamp to the retort, taking care that the heat does not exceed 500 degrees. When the crystals begin to melt, the gas will be produced in considerable quantities. The gas may also be produced, though not so pure, by pouring nitric acid, diluted with five, or six times its weight of water, on copper filings or small pieces of tin. The gas is given out till the acid begins to turn brown; the process must then be stopped.

Laughing Gas.

Procure an oiled or varnished silk bag, or a bladder, furnished with a stop-cock; fill it with nitrous oxide, and after emptying the lungs of common air, take the stop-cock into the mouth, and at the same time hold the nostrils, and the sensation produced will be of a highly pleasing nature. A great propensity to laughter, a rapid flow of vivid ideas, and an unusual fitness for muscular exertion, are the ordinary feelings which it produces. The sensations produced by breathing this gas, are not the same in all persons, but they are always of an agreeable nature, and not followed by any depression of spirits, like those occasioned by fermented liquors.

Artificial Coral for Grottos.

To two drachms of fine vermilion add one ounce of clear resin, and melt them together. Having the branches of twigs peeled and

A Powder which catches Fire when exposed to the Air.

Put three ounces of rock alum, and one ounce of honey or sugar, into a new earthen dish, glazed, and which is capable of standing a strong heat; keep the mixture over the fire, stirring it continually till it becomes very dry and hard: then remove it from the fire, and pound it to a coarse powder. Put this powder into a long-necked bottle, leaving a part of the vessel empty: having placed it in a crucible, fill up the crucible with fine sand, and surround it with burning coals. When the bottle has been kept at a red heat for about seven or eight minutes, and no more vapour issues from it, remove it from the fire, then stop it with a piece of cork; and having suffered it to cool, preserve the mixture in small bottles well closed.

If you unclose one of these bottles, and let fall a few grains of this powder on a bit of paper, or any other very dry substance, it will first become blue, then brown, and will at last burn the paper or other substance, on which it has fallen.

Three Jealous Husbands with their Wives.

Being ready to pass by night over a river, do find at the river side a boat which can carry but two persons at once, and for want of a boatman they are necessitated to row themselves over the river at several times; the question is, how six persons shall pass two by two, so that none of the three Wives may be found in the company of one or of two men, unless her Husband be present?

They must pass in this manner, viz.—First two women pass, then one of them bringeth back the boat and repasseth with the third women; that done, one of the three women bringth back the boat, and sitting down upon the ground with her husband, permitteth the other two men to pass over to find their wives; then one of the said men with his wife bringeth back the boat, and placing her upon the ground, he taketh the other man, and repasseth with him; last, thely

woman which is found with the three men entereth into the boat, and at twice goeth so fetch over the other two women.

The Hydraulic Dancer.

Procure a little figure of cork, which you may dress as your fancy dictates. In this figure place a small hollow cone, made of thin leaf brass.

When the figure is placed on a jet d'eau, that plays in a perpendicular direction, it will be suspended on the top of the water, and perform a great variety of amusing motions.

If a hollow ball, of very thin copper, of an inch in diameter, be placed on a similar jet, it will remain suspended, turning round, and spreading the water all about it.

The accompanying device of Atlas carrying the world on his shoulders, is an extremely appropriate figure for this pleasing experiment.

The Fiery Fountain.

If twenty grains of phosphorus, cut very small, and mixed with forty grains of powder of zinc, be put into four drachms of water, and two drachms of concentrated sulphuric acid be added thereto, bubbles of inflamed phosphorated hydrogen gas will quickly cover the whole surface of the fluid in succession, forming a real fountain of fire.

The Magic Bottle.

Take a small bottle, the neck of which is not more than the sixth of an inch in diameter. With a funnel, fill the bottle quite full of red wine and place it in a glass vessel, similar to a shew glass, whose height exceeds that of the bottle about two inches; fill this vessel with water. The wine will shortly come out of the bottle, and rise in the form of a small column to the surface of the water; while at

a drop will appear at the mouth. which will enlarge till it falls, and then another drop, while the humidity of the atmosphere continues.

The Enchanted Bottle.

Fill a glass bottle with water to the beginning of the neck; leave the neck empty and cork it. Suspend this bottle opposite a concave mirror, and beyond its focus, that it may appear reversed. Place yourself still further distant from the bottle; and instead of the water appearing, as it really is, at the bottom of the bottle will be empty and the water seen at the top.

If the bottle be suspended with the neck down wards, it will be reflected in its natural position, and the water at the bottom, although in reality, it is inverted, and fills the neck, leaving the bottom vacant. While the bottle is in this positson, uncork it, and let the water run gradually out; it will appear, that while the real bottle is emptying, the reflected one is filling. Care must be taken that the bottle is not more than half or three parts full, and that no other liquid is used but water, as in either of these cases the illusion cases.

Powerful Musical Instrument.

Take a common poker, and tie a tape on it at top, so that both ends of the tape are left at liberty; these ends must be rolled round the first finger of each hand, and then with these fingers stopped the ears close, strike the poker thus suspended against any body. The depth of the tone which this add musical instrument returns will be a mazing. The deepest and largest bell will not equal it.

A Shilling out of a Handkerchief.

You must have a curtain-ring, the size of a shilling. At first, you put the shilling into the handkerchief; but when you take it out to shew there is no deception, you slip the ring into its stead, and while the person is eagerly holding the handkerchief, and the company's

eyes are fixed upon the form of the shilling, you seize the opportunity of conveying it secretly away. When you have possession of the handkerchief again, you slip away the curtain ring.

Candle that the strongest Wind will not blow out.

Put some salt upon a linen rag, and roll it round the candle; you may then light the candle, and it will burn all away, even if you have it out all the while in a strong wind.

Rain Gauge.

A very simple rain gauge, and one which will answer all practical purposes, consists of a copper funnel, the area of whose opening is exactly ten square inches: this funnel is fixed in a bottle, and the quantity of rain caught is ascertained by multiplying the weight in ounces by 173, which gives the depth in inches and parts of an inch. In fixing these gauges, care must be taken that the rain may have free access to them: hence the tops of buildings are usually the best places. When the quantities of rain collected in them at different places, are compared, the instruments ought to be fixed at the same heights above the ground at both places, because at different heights the quantities are always different, even at the same place.

The Aquatic Dancers.

Construct two small hollow figures of enamel; but in the lower part, representing the feet, leave a small hole, through which a drop of water can be introduced, or apply to the black part of each a sort of appendage in the form of a tail, pierced at the end, so that a portion of water may be made to enter this tube. Then bring the figure into equilibrium in such a manner, that with this small drop of water, it shall keep itself upright, and remain suspended in the fluid. Fill the bottle with water to the orifice, and cover it with parchment,

which must be closely tied round the neck: To put the figures in motion, press the parchment over the orifice with your finger, and the figures will descend, remove your finger, they will rise; apply and remove your fingers alternately, the figures will be agitated in the middle of the fluid, in such a manner as to excite the astonishment of those unacquainted with the cause.

The Magnetic Wand.

Bore a hole, three-tenths of an inch diameter, through a round stick of wood; or get a hollow cane about eight inches long, and half an inch thick. Provide a small steel rod, and let it be very strongly impregnated with a good magnet; this rod is to be put in the hole you have bored through the wand, and closed at each end by two small ends of ivory that screw on, different in their shapes, that you may better distinguish the poles of the magnetic bar.

When you present the north pole of this wand to the south pole of a magnetic needle, suspended on a pivot, or to a light body swimming on the surface of the water (in which you have placed a magnetic bar,) that body will approach the wand, and present that end which contains the south end of the bar; but if you present the north or south end of the wand, to the north or south end of the needle, it will recede from it.

The Learned Swan.

Have a large marble or china bowl, painted inside the rim with the letters of the alphabet; a small swan in which is concealed a steel or iron pin, is set to swim in the bowl, and on being desired, will select any letters, say those which compose your name—to effect this, the performer of the trick must have a magnet in his pocket, by means of which, as he moves round the table, the swan will be attracted to every letter at which it is required to stop.

The Mysterious Watch.

You desire any person to lend you his watch, and ask him if

will go when laid on the table. He will, no doubt, say it will; in which case, you place it over the end of the magnet, and it will presently stop. You then mark the precise spot where you placed the watch, and moving the point of the magnet, you give the watch to another person, and desire him to make the experiment; in which he not succeeding, you give it to a third (at the same time replacing the magnet) and he will immediately perform it.

This experiment cannot be effected, unless you use a very strongly impregnated magnetic bar, (which may be purchased at an optician's) and the balance of the watch must be of steel, which may be easily ascertained by previously opening it, and looking at the works.

Suspended Needle.

Place a magnet on a stand to raise it a little above the table, then bring a small sewing needle, containing a thread, within a little of the magnet, keeping hold of the thread to prevent the needle, from attaching itself to the magnet. The needle, in endeavouring to fly to the magnet, and being prevented by the thread, will remain curiously suspended in the air.

The Magnetical Table.

Under the top of a common table, place a magnet that turns on a pivot, fix a board to cover it, so that it may not be discovered. At one end of the table, secretly place a tin, that communicates with the magnet, and by which it may be placed in several different position. Strew some steel filings, or very small nails, over that part of the table where the magnet is and requesting the loan of a knife or key, apply it to the filings, and it will have the same effect on the larger ends of these as a magnet would Then placing your hand as if carelessly on the pin at the bottom of the table, alter the position of the magnet, and giving the key or knife to any one you will disappoint, he will be unable to perform the experiment as you

have done; changing the pin's influence again, you may shew that you have these things at command.

Hydrogen Gas.

Provide a phial with a cork stopper, through which is thrust a piece af tobacco-pipe. Into the phial put a few pieces of zinc, or small iron nails; on this pour a mixture, of equal parts of sulphuric acid, (oil of vitriol), and water, previously mixed in a tea-cup, to prevent accidents. Replace the cork stopper, with the piece of tobacco-pipe in it; the hydrogen gas will then be liberated through the pipe into a small stream. Apply the flame of a candle or taper to this stream, and it will immediately take fire, and burn with a clear flame until the hydrogen in the phial be exhausted. In the experiment, the zinc or iron, by the action of the acid, becomes oxygenised, and is dissolved, thus taking the oxygen from the sulphuric acid and water; the hydrogen (the other constituent part of the water) is therefore liberated and ascends.

Hydrogen Gas.

Apply a bladder, previously wetted and compressed, in order to squeeze out all the common air, to the piece of tabacco-pipe inserted in the cork stopper of the phial. The bladder will thus be filled with hydrogen gas.

Pure Flame.

Hydrogen gas furnishes the purest flame that can be exhibited; for the flame of bodies that emit much light derive that power from solid bodies intensely ignited, and diffused through them, and which, in ordinary flames, as of gas, tallow, wax, oil, &c. consists of finely divided charcoal.

Inflamed Soap Bubbles.

With a pair of bellows, half fill a bladder, having a stop-cock, with common air, and fill the other half with hydrogen gas: screw a brass tobacco-pipe to the stop-cock, and dip it into a basin of soap-lather. When the bladder is pressed, bubbles will rush out, to which apply the flame of a candle; and they will explode with great violence. Let the bubbles be detached from the bowl of the pipe, before they are inflamed, or else the flame may rush into the pipe, and burst the bladder.

Oxygen Gas.

Put a small quantity of the black oxide of manganese into a tubulated retort, and pour upon it as much strong sulphuric acid as will convert it into a thin paste. Support the retort upon a wire stand, and let the open end of it dip under the edge of the glass vessel which is placed on the shelf of the pneumatic-trough full of water to receive the gas; then apply the heat of a lamp to the retort, and the gas will continue to form as long as the manganese contains any of it.

Artificial Volcano.

Mix 28 pounds of sulphur and 28 pounds of ironfilings together and add as much water as will form the whole into a paste: bury the mass about two feet below the surface of the earth, and in twelve or fourteen hours so much heat will be generated, as to swell the earth, and cause an artificial volcano, throwing up whatever impedes its progress, and scattering round ashes of a yellowish and black colour. To succeed in this experiment, advantage should be taken of warm weather, and after the tenth hour of burying the mass, care should be taken not to approach too near its situation.

The Artificial Landscape.

Procure a box of about a foot long, eight inches wide, and six

have done; changing the pin's influence again, you may shew that you have these things at command.

Hydrogen Gas.

Provide a phial with a cork stopper, through which is thrust a piece af tobacco-pipe. Into the phial put a few pieces of zinc, or small iron nails; on this pour a mixture, of equal parts of sulphuric acid, (oil of vitriol), and water, previously mixed in a teacup, to prevent accidents. Replace the cork stopper, with the piece of tobacco-pipe in it; the hydrogen gas will then be liberated through the pipe into a small stream. Apply the flame of a candle or taper to this stream, and it will immediately take fire, and burn with a clear flame until the hydrogen in the phial be exhausted. In the experiment, the zinc or iron, by the action of the acid, becomes oxygenised, and is dissolved, thus taking the oxygen from the sulphuric acid and water; the hydrogen (the other constituent part of the water) is therefore liberated and ascends.

Hydrogen Gas.

Apply a bladder, previously wetted and compressed, in order to squeeze out all the common air, to the piece of tabacco-pipe inserted in the cork stopper of the phial. The bladder will thus be filled with hydrogen gas.

Pure Flame.

Hydrogen gas furnishes the purest flame that can be exhibited; for the flame of bodies that emit much light derive that power from solid bodies intensely ignited, and diffused through them, and which, in ordinary flames, as of gas, tallow, wax, oil, &c. consists of finely divided charcoal.

Inflamed Soap Bubbles.

With a pair of bellows, half fill a bladder, having a stop-cock, with common air, and fill the other half with hydrogen gas screw a brass tobacco-pipe to the stop-cock, and dip it into a basin of soap-lather. When the bladder is pressed, bubbles will rush out, to which apply the flame of a candle; and they will explode with great violence. Let the bubbles be detached from the bowl of the pipe, before they are inflamed, or else the flame may rush into the pipe, and burst the bladder.

Oxygen Gas.

Put a small quantity of the black oxide of manganese into a tubulated retort, and pour upon it as much strong sulphuric acid as will convert it into a thin paste. Support the retort upon a wire stand, and let the open end of it dip under the edge of the glass vessel which is placed on the shelf of the pneumatic-trough full of water to receive the gas; then apply the heat of a lamp to the retort, and the gas will continue to form as long as the manganese contains any of it.

Artificial Volcano.

Mix 28 pounds of sulphur and 28 pounds of ironfilings together and add as much water as will form the whole into a paste: bury the mass about two feet below the surface of the earth, and in twelve or fourteen hours so much heat will be generated, as to swell the earth, and cause an artificial volcano, throwing up whatever impedes its progress, and scattering round ashes of a yellowish and black colour. To succeed in this experiment, advantage should be taken of warm weather, and after the tenth hour of burying the mass, care should be taken not to approach too near its situation.

The Artificial Landscape.

Procure a box of about a foot long, eight inches wide, and six

inches high; or any other dimensions you please; so they do not greatly vary from these proportions. At each of its opposite ends on the inside of this box, place a piece of lookingglass that shall exactly fit: but at that end where the sight hole is, scrape the quicksilver off the glass, through which the eye can view the objects.

Cover the box with gauze, over which place a piece of transparent glass, which is to be well fastened in. Let there be two grooves at each of the places to receive two printed scenes as follows: on two pieces of pasteboard, let there be skilfully painted, on both sides, any subject you think proper, as woods, bowers, gardens, houses, &c. and on two other board, the same subjects on one side only, and cut out all the white parts: observe also, that there ought to be in one of them some object relative to the subject placed at the hole that the mirror placed may not reflect the hole on the opposite side.

The boards painted on both sides are to slide in the grooves and those painted on one side are to be placed against the opposite mirrors; then cover the box with its transparent top. This box should be placed in a strong light, to have a good effect.

When it is viewed through the sight hole, it will present an unlimited prospect of rural scenery, gradually loosing itself in obscurity; and be found well worth the pains bestowed on its construction.

Solar Microscope.

Make a round hole in the window-shutter, about three inches in diameter, and place in it a glass lens of about twelve inches focal distance. To the inside of the hole adapt a tube, having at a small distance from the lens, a slit, capable of receiving one or two very thin plates of glass, to which the object to be viewed must be affixed by means of a little gum water, exceedingly transparent. Into this tube fit another, furnished at its anterior extremity with a lens half an inch focal distance. Place a mirror before the hole of the window shutter on the outside, in such a manner as to throw the light of

the sun into the tube, and you will have a solar magic lantern. The method of employing it is as follows having darkened the room, and by means of the mirror reflected the sun's rays on the glasses in a direction parallel to the axis, place some small object between the two moveable plates of glass, or affix it to one of them with very transparent gum water, and bring it exactly into the axis of the tube; if the moveable tube be then pushed in or drawn out till the object be a little beyond the focus, it will be seen painted very distinctly on a card or piece of white paper, held at a proper distance, and will appear to be greatly magnified. A small insect will appear a large animal, or a hair as big as a walking-stick; the eels in vinegar, or flour paste will look like small serpents.

Electric Spider.

Insulate two bodies, and charge one of them plus, the other minus. Then suspend between them by a silken string, an artificial spider, of which the body may be cork and the legs and fibres of feathers; the spider will move from one of the insulated bodies to the other, till their charge is equalized.

Electrical Shock from a Cat.

Place the left hand under the throat, with the middle finger and thumb slightly pressing the bones of the animal's shoulder, then gently passing the right hand along the back, sensible electrical shocks will be felt in the left hand, and very distinct discharges may be obtained by touching the tips of the ears, after applying friction to the back: the same may be obtained from the foot.

The Electrical Fountain.

Suspend a vessel of water from the middle of the brass arch, and place in the vessel a small tube. The water will be one continued stream; and if the electrification be strong, a number of streams will

issue, in form of a cone, the top of which will be at the extremity of the tube. This experiment may be stopped and renewed almost instantly, as if at the word of command.

Electric Chase.

The experiment called *The Electric Flies,* shews the effect of points in an amusing manner. It is a combination of two of these flies, which consist of brass wires fastened, in the same plane, in a small brass centre-piece or cap; these wires are finely pointed, and bent at right angles near their extremities; and those of each fly are bent in the same direction, though the two flies with respect to each other have their points in a contrary direction. Each fly is exactly balanced, and will turn on its centre by the slightest impulse. The supporting wire, is fixed in the prime conductor, and so soon as it is electrified, the flies begin to turn with great rapidity, each in a contrary direction to that of its point, and in the dark the course of each fly will be marked by a line of fire. With a sufficiently powerful machine, the number of flies may be considerable, and by varying their sizes, distances, and position, an interesting spectacle will be produced.

The flies, in this experiment, turn the same way, whether positively or negatively electrified. This must be evident, when the cause of their motion is considered. When they are positively electrified, the electric fluid issuing from the points strikes the air, and causes their motion in a contrary direction to the points: and when they are electrified negatively, the stream of electricity which they solicit, impels them in the same direction. Under an exhausted receiver no motion is produced, because the medium which still remains is not dense enough for the electric fluid to act upon with so much force, as to overcome the friction of the flies upon their centres. Also, under an insulated receiver, containing only common air, the motion soon ceases, because the air and the glass soon become so much electrified, that the electric fluid ceases to escape from the points.

The Electrical Mill.

A is the water-wheel, B the cog-wheel, on its axis, C the trundle turned by that wheel, and D the running mill-stone on the top of the axis of the trundle. It may easily be turned by electricity, if instead of the round plate D for the mill-stone, there be a horizontal wheel on the axis of the trundle C, with spur-cogs, which will turn two trundles placed on its opposite sides; and on the top of each axis of the trundles, may be a round plate, representing a mill-stone: so that this model has all the working parts of a double water-mill, turning two mill-stones.

Set the mill near the prime conductor, and place the crooked wire, so that its point may be directed towards the uppermost ladle of the great wheel A; then work the electrical machine, and the stream of fire that issues from point of the wire well turn the wheel; and consequently all the other working parts of the mill.

Brilliant Electrical Star.

If a plate of tin be cut into the form of a star, and be supported on its centre by a wire projecting from the prime conductor, as soon as the wheel of the machine is turned, and this apparatus electrified, a flame will appear at the extremity of every angle of the star, which will be very beautiful; and if the star be made to turn swiftly on its centre, an entire circle of fire will be seen in the dark. This experiment will appear very surprising to persons unacquainted with electricity, if the operator now and then privately touch the prime conductor, which may easily be managed as the experiment is performed in the dark; for by this means he may command the appearance or disappearance of the star or circle of fire, at pleasure.

The Electrical Kiss.

A lady may challenge any gentleman, not acquainted with the experiment, that he will not be able to kiss her, although she may

incline to meet him. If he accepts the challenge, and the machine turn while they are inclining their heads to kiss each other, provided their clothes do not touch before their lips meet, a spark of fire will fly from the lady to the gentleman, which will be sure to make him draw back, without accomplishing his design.

The Fiery Shower.

On the plate put a number of any kind of seeds, grains of sand, or brass dust. The conductor being strongly electrified, those light particles will be attracted and repelled by the plate suspended from the conductor, with amazing rapidity, so as to exhibit a perfect fiery shower.

Another way is by a sponge that has been soaked in water. When this sponge is first hung to the conductor, the water will drop from it very slowly; but when it is electrified, the drops will fall very fast, and appear like small globes of fire, illuminating the basin into which they fall.

To Illuminate Water.

Connect one end of a chain with the outside of a charged jar, and let the other end lie upon the table. Place the end of another piece of chain at the distance of about one quarter of an inch, from the former; then set a decanter of water upon these separated ends, and on making the discharge, the water will be illuminated.

The Electric Sparks.

When the prime conductor is situated in its proper place, and electrified by whirling the cylinder, if a metallic wire, with a ball at its extremity, or the knuckle of a finger, be presented to the prime conductor, a spark will be seen to issue between them, which will be more vivid, and will be attended with a greater or less explosion, according as the ball is larger. The strongest and most vivid sparks

are drawn from that end or side of the prime conductor which is farthest from the cylinder. The sparks have the same appearance whether they be taken from the positive or the negative conductor; they sometimes appear like a long line of fire reaching from the prime conductor to the opposite body, and often (particularly when the spark is long, and different conducting substances in the line of its direction) it will have the appearance of being bent to sharp angles in different places, exactly resembling a flash of lightning.

The figure of a spark varies with the superficial dimensions of the part from which it is taken. If it be drawn from a ball of two or three inches in diameter, it will have the appearance of a straight line; but if the ball from which it is drawn be much smaller, as half an inch in diameter, it will assume the zig-zag appearance above mentioned.

Illuminated Phosphorus.

Put some of Canton's phosphorus into a clear glass phial, and stop it with a glass stopper, or a cork and sealing-wax. If this were be kept in a darkened room (which for this experiment must be very dark) it will give no light, but let two or three strong sparks be drawn from the prime conductor, when the phial is kept about two inches distant from the sparks, so that it may be exposed to that light, and this phial will receive the light, and afterwards will appear illuminated for a considerable time.

This powder may be stuck upon a board by means of the white of an egg, so as to represent figures of plants, letters, or any thing else, at the pleasure of the operator, and these figures may be illuminated in the dark, in the same manner as the above described phial.

A beautiful method of expressing geometrical figures with the above powder, is to bend small glass tubes, of about the tenth part of an inch diameter, in the shape of the figure desired, and then to fill them with the phosphoric powder. These may be illuminated in the manner described; and they are not so subject to be spoiled, as the figures represented upon the board frequently are.

Electrified Air.

Fix two or three pointed needles into the prime conductor of an electrical machine, and set the glass in motion so as to keep the prime conductor electrified for several minutes. If now, an electrometer be brought within the air that is contiguous to the prime conductor, it will exhibit signs of electricity, and this air will continue electrified for some time, even after the machine has been removed into another room. The air, in this case, is electrified positively; it may be negatively electrified by fixing the needles in the negative conductor while insulated, and making a communication between the prime conductor and the table, by means of a chain or other conducting substance. The air of a room may be electrified in another way. Charge a large jar, and insulate it; then connect two or more sharp pointed wires or needles, with the knob of the jar, and connect the outside coating of the jar with the table. If the jar be charged positively, the air of the room will soon become positively electrified likewise; but if the jar be charged negatively, the electricity communicated by it to the air, will also become negative. A charged jar being held in one hand, and the flame of an insulated candle held in the other being brought near the knob of the jar, will also produce the same effect.

The Electric Kite.

Make a small cross of two light strips of cedar, the arms so long as to reach to the four corners of a large thin silk handkerchief when extended; tie the corners of the handkerchief to the extremities of the cross, and you have the body of the kite; which being properly accommodated with a tail, loop, and string, will rise in the air like those made of paper: but this being silk, is more adapted to bear the wet and wind of a thunder gust, without tearing. To the top of the upright stick of the cross is to be fixed a very sharp pointed wire, rising a foot or more above the wood. To the end of the twine is to be tied a silk ribbon, and where the silk and twine join, a key may be fastened. This kite is to be raised when a thunder-storm appears to be coming on; and the person who holds the string must stand

within a door or window, or under some cover, so that the silk ribbon may not be wet; and care must be taken that the twine do not touch the frame of the door or window. As soon as any of the thunder clouds come over the kite, the pointed wire will draw the electric fire from them, and the kite, with all the twine, will be electrified, while the loose filaments of the twine will stand out every way, and be attracted by an approaching finger. When the rain has wetted the kite and twine, so that it can conduct the electric fire freely, you will find it stream out plentifully from the key on the approach of your knuckle. At this key an *electric* phial may be charged; and from electric fire thus obtained, spirits may be kindled, and all the other electric experiments performed, which are usually done by the help of a rubbed glass or tube, and thereby the identity of the electric matter with that of lightning completely demonstrated.

The Electric Ball.

Provide a ball of cork about three quarters of an inch in diameter, hollowed out in the internal part by cutting it in two hemispheres, scooping out the inside, and then joining them together with paste. Having attached this to silk thread between three and four feet in length, suspend it in such a manner that it may just touch the knob of an electric jar, the outside of which communicates with the ground. On the first contact it will be repelled to a considerable distance, and after making several vibrations, will remain stationary; but if a candle be placed at some distance behind it, so that the ball may be between it and the bottle, the ball will instantly begin to move, and will turn round the knob of the jar, moving in a kind of ellipsis as long as there is any electricity in the bottle. This experiment is very striking, though the motions are far from being regular, but it is remarkable that they always affect the elliptical rather than the circular form.

The Electrified Camphor.

A beautiful experiment of the same nature is made with camphor. A spoon holding a piece of lighted camphor is made to

communicate with an eletrified body, as the prime conductor of a machine; while the conductor continues eletrified by keeping the machine in motion, the camphor will throw out ramifications, and appear to shoot like a vegetable.

Galvanic Shock.

Several persons may receive the shock together, by joining hands, in the same manner as in receiving the shock from a Leyden phial. Their hands should be well moistened; but the strength of the shock diminishes as it proceeds, in consequence of which the last person feels it much less violently than the first. After receiving the galvanic shock, a slight numbness of the part that has been exposed to it remains for some time.

The galvanic shock may also be conveniently given by immersing the hands or the feet into vessels containing a solution of salt, and bringing wires from each end of the battery into the liquid. If any other part of the body is intended to be operated upon, a sponge, moistened with salt-water and fastened to a metal plate connected with one end of the battery, may be applied to the part, and the hand or foot put into a vessel of the same liquid, connected by a wire with the other end of the battery. Small bits of sponge, or bits of leather, may be fastened to the end of the connecting wires, and made more or less moist as the delicacy of the part may require.

Powerful Batteries.

Sir H. Davy's great voltaic battery consisted of two thousand double plates of copper and zinc of four inches square.

Each plate of Mr. Children's large galvanic battery consists of thirty-two square inches, and produced intense heat. Iron was instantaneously converted by it to blister steel, and diamond powder disappeared.

The Shower of Fire.

Place on the top of the air-pump a small circular plate, pierced with holes, and supporting a small cylindric receiver, terminating in a hemisphere, and cover the whole with a larger receiver, having a hole in its summit, to admite a glass funnel filled with mercury. The funnel must shut with a stopper, so as to open when necessary. Then exhaust the air from the receiver, and open the funnel which contains the mercury, which will run down, and falling on the convex summit of the interior receiver, will be thrown up in small luminous drops, so as to resemble a shower of fire.

Water boiled by Air.

Take water made so warm that you can just bear your hand in it, but that has not been boiled; put it under the receiver, and exhaust the air. Bubbles of air will soon be seen to rise, at first very small, but presently become larger, and will be at last so great, and rise with so much rapidity, as to give the water the appearance of boiling. This will continue till the air is let into the receiver, when it will instantly cease.

Galls broken by Air.

Lay a square of glass on she top of an open receiver, and exhaust the air. The weight of the external air will press on the glass, and smash it to atoms.

The Floating Stone.

To a piece of cork tie a small stone that will just sink it; and putting it in a vessel of water, place it under the receiver. Then exhausting the receiver, the bubbles of air will expand from its pores, and adhering to its surface, will render it, together with the stone, lighter than water, and consequently they will rise to the surface, and float.

communicate with an eletrified body, as the prime conductor of a machine; while the conductor continues eletrified by keeping the machine in motion, the camphor will throw out ramifications, and appear to shoot like a vegetable.

Galvanic Shock.

Several persons may receive the shock together, by joining hands, in the same manner as in receiving the shock from a Leyden phial. Their hands should be well moistened; but the strength of *the shock diminishes as it proceeds, in consequence of which* the last person feels it much less violently than the first. After receiving the galvanic shock, a slight numbness of the part that has been exposed to it remains for some time.

The galvanic shock may also be conveniently given by immersing the hands or the feet into vessels containing a solution of salt, and bringing wires from each end of the battery into the liquid. If any other part of the body is intended to be operated upon, a sponge, moistened with salt-water and fastened to a metal plate connected with one end of the battery, may be applied to the part, and the hand or foot put into a vessel of the same liquid, connected by a wire with the other end of the battery. Small bits of sponge, or bits of leather, may be fasfened to the end of the connecting wires, and made more or less moist as the delicacy of the part may require.

Powerful Batteries.

Sir H. Davy's great voltaic battery consisted of two thousand bouble plates of copper and zinc of four inches square.

Each plate of Mr. Children's large galvanic battery consists of thirty-two square inches, and produced intense heat. Iron was instantaneously converted by it to blister steel, and diamond powder disappeared.

The Shower of Fire.

Place on the top of the air-pump a small circular plate, pierced with holes, and supporting a small cylindric receiver, terminating in a hemisphere, and cover the whole with a larger receiver, having a hole in its summit, to admite a glass funnel filled with mercury. The funnel must shut with a stopper, so as to open when necessary. Then exhaust the air from the receiver, and open the funnel which contains the mercury, which will run down, and falling on the convex summit of the interior receiver, will be thrown up in small luminous drops, so as to resemble a shower of fire.

Water boiled by Air.

Take water made so warm that you can just bear your hand in it, but that has not been boiled; put it under the receiver, and exhaust the air. Bubbles of air will soon be seen to rise, at first very small, but presently become larger, and will be at last so great and rise with so much rapidity, as to give the water the appearance of boiling. This will continue till the air is let into the receiver, when it will instantly cease.

Galls broken by Air.

Lay a square of glass on she top of an open receiver, and exhaust the air. The weight of the external air will press on the glass, and smash it to atoms.

The Floating Stone.

To a piece of cork tie a small stone that will just sink it; and putting it in a vessel of water, place it under the receiver. Then exhausting the receiver, the bubbles of air will expand from its pores, and adhering to its surface, will render it, together with the stone, lighter than water, and consequently they will rise to the surfare, and float.

The Magic Bell.

Fix a small bell to the wire that goes through the top of the receiver. If you shake the wire, the bell will ring while the air is in the receiver; but when the air is drawn off, the sound will by degrees become faint, till at last not the least noise can be heard. As you let the air in again, the sound returns.

The Mercurial Wand.

Take a piece of stick, cut it even at each end with a penknife, and immerse it in a vessel of mercury. When the air is pumped out of the receiver, it will at the same time come out of the pores of the wood through the mercury, as will be visible at each end of the stick. When the air is again let into the receiver, it falls on the surface of the mercury, and forces it into the pores of the wood to possess the place of air.

When the rod is taken out, it will be found considerably heavier than before, and that it has changed its colour, being now all over of a blueish hue. If cut transversely, the quicksilver will be seen to glitter in every part of it.

Feathers heavier than Lead.

At one end of a fine balance, hang a piece of lead, and at the other as many feathers as will poise it; then place the balance in the receiver. As the air is exhausted, the feathers will appear to overweigh the lead, and when all the air is drawn off, the feathers will preponderate, and the lead ascend.

The Self-moving Wheel.

Take a circle of tin, about ten inches in diameter, or of any other size that will go into the receiver, and to its circumference fix a number of tin vanes, each about an inch square. Let this wheel be

placed between two upright pieces on an axis, whose extremities are quite small, so that the wheel may turn in a vertical position with the least possible force. Place the wheel and axis in the receiver, and exhaust the air. Let there be a small pipe with a cock; one end of the pipe to be outside the top of the receiver, and the other to come directly over the vanes of the wheel.

When the air is exhausted, turn the cock, and a current will rush against the vanes of the wheel, and set it in motion, which will increase, till the receiver is filled with air.

The Artificial Halo.

Place a candle on one side of a receiver, and let the spectator place himself at a distance from the other side. Directly the air begins to be exhausted, the light of the candle will be refracted in circles of various colours.

Vegetable Air Bubbles.

Put a small branch of a tree with its leaves, or part of a small plant, in a vessel of water, and placing the vessel in the receiver exhaust the air. When the pressure of the external air is taken off, the spring of that contained in the air vessels of the plant by expanding the particles, will make them rise from the orifices of all the vessels for a long time together, and produce a most beautiful appearance.

The Talking Busts.

PROCURE two busts of plaster of Paris, place them on pedestals, on the opposite sides of a room. Let a thin tube, of an inch diameter, pass from the ear of one head through the pedestal, under the floor, and go up to the mouth of the other; taking care that the end of the tube that is next the ear of the one head, be considerably larger than that end which comes to the mouth of the other.

Now when a person speaks quite low into the ear of one bust, the sound is reverberated through the length of the tube, and will be distinctly heard by any one placing his ear to the mouth of the other. It is not necessary that the tube should come to the lips of the bust. If there be two tubes, one going to the ear, and the other to the mouth of each head, two persons may converse together to whiswers, without the knowledge of any person who may stand in the middle of the room.

To Tell a Number Thought of.

The person who selected a number is to double it, add four, and Multiply the result by five; add twelve to this product, and multiply all by ten; then subtract from the total 320 (three hundred and twenty). Ask the remainder, from which you strike off the two last figures, or ciphers, and the first will be the number thought of.

Example.—Three being the number thought of, its.

double is	6
Adding four, the total is	10
Multiplying 10 by 5, there results ..	50
Adding twelve, the amount is	62
Which, multiplied by ten, makes ..	620
Subtract	320
And the remainder is	300

Striking out the two last figures, the 3 (three) which heads them is the number thought of.

Peculiar Properties of the Numbers 37 and 73.

The number 37 being multiplied by each of the numbers in the arithmetical progression 3, 6, 9, 12, 15, 18, 21, 24, and 27, all the products will be composed of three similar figures, and the sum is always equal to the number by which 37 was mutiplied.

Examples.

37	37	37	37	37	37	37	37	3
3	6	9	12	15	18	21	24	2
111	222	333	444	555	666	777	888	99

The number 73 being multiplied by each of the aforegiven progression, the products will terminate by one of the nine digits—1, 2, 3, 4, 5, 6, 7, 8, 9, in a reverse order.

To Divide a Number in Two And have no Remainder.

Let us suppose 8888 Run a line through the middle horizontally, and only ciphers will be left.

To Divide equally Eight Pints of Wine among Three jars holding severally Three, Five, and Eight Pints.

Call the large jar A, the five-pint one B, and the small one C. Pour from A, which is full at commencement, as much into B as it will hold, and fill C from B; then pour out of C into A, and the remainder in B, which is two pints, give to C. Now pour into B the wine in A, and from what is in B fill up the rest of C, that is one pint added, as there is already two in A. There is then left four pints, in B, which will be just half.

The Bottle of the Four Elements.

Wind silver or gold wire, or paste thin strips of coloured paper around a long bottle, so as to divide it into five parts. For Earth, coarsely grind some black glass or enamel, of which the weight will send it to the bottom, to represent the heaviest of the elements. For Water, the next in weightiness, take oil of tartar, liquefied by being exposed to damp air, and mixed with a little very fine blue

Now when a person speaks quite low into the ear of one bust, the sound is reverberated through the length of the tube, and will be distinctly heard by any one placing his ear to the mouth of the other. It is not necessary that the tube should come to the lips of the bust. If there be two tubes, one going to the ear, and the other to the mouth of each head, two persons may converse together to whiswers, without the knowledge of any person who may stand in the middle of the room.

To Tell a Number Thought of.

The person who selected a number is to double it, add four, and Multiply the result by five; add twelve to this product, and multiply all by ten; then subtract from the total 320 (three hundred and twenty). Ask the remainder, from which you strike off the two last figures, or ciphers, and the first will be the number thought of.

Example.—Three being the number thought of, its.

double is	6
Adding four, the total is	10
Multiplying 10 by 5, there results ..	50
Adding twelve, the amount is	62
Which, multiplied by ten, makes ..	620
Subtract	320
And the remainder is	300

Striking out the two last figures, the 3 (three) which heads them is the number thought of.

Peculiar Properties of the Numbers 37 and 73.

The number 37 being multiplied by each of the numbers in the arithmetical progression 3, 6, 9, 12, 15, 18, 21, 24, and 27, all the products will be composed of three similar figures, and the sum is always equal to the number by which 37 was mutiplied.

Examples.

37	37	37	37	37	37	37	37	37
3	6	9	12	15	18	21	24	27
111	222	333	444	555	666	777	888	999

The number 73 being multiplied by each of the aforegiven progression, the products will terminate by one of the nine digits—1, 2, 3, 4, 5, 6, 7, 8, 9, in a reverse order.

To Divide a Number in Two And have no Remainder.

Let us suppose 8888. Run a line through the middle horizontally, and only ciphers will be left.

To Divide equally Eight Pints of Wine among Three jars holding severally Three, Five, and Eight Pints.

Call the large jar A, the five-pint one B, and the small one C. Pour from A, which is full at commencement, as much into B as it will hold, and fill C from B; then pour out of C into A, and the remainder in B, which is two pints, give to C Now pour into B the wine in A, and from what is in B fill up the rest of C; that is one pint added, as there is already two in A. There is then left four pints, in B, which will be just half.

The Bottle of the Four Elements.

Wind silver or gold wire, or paste thin strips of coloured paper around a long bottle, so as to divide it into five parts. For Earth, coarsely grind some black glass or enamel, of which the weight will send it to the bottom, to represent the heaviest of the elements. For Water, the next in weightiness, take oil of tartar, liquefied by being exposed to damp air, and mixed with a little very fine blue

powder to tinge it azure, like the sea. For Air, use brandy, also a little blued. For Fire, distilled rock-oil, coloured with Brazil wood. Place into the bottle thus: 1st, the black glass; 2nd, the burnt tartaric acid; 3rd, brandy; 4th, rock-oil. Cork with a glass stopper, and seal with gum mastic. Shake it up well, and the contents will intermingle as a chaos; but, when quiet, all the substances will settle orderly into place, the lighter bodies letting the heavier ones glide through them.

The Surprising Bottle.

Let your tinman make you a bottle double all around, in which "jacket" you can put wine. Where the bottom of the bottle goes upward, let a hole be made, so that the bottle is merely a hollow wall containing a tube. When you wish to perform the trick, produce the bottle, filled with good wine, and set it on your table, upon a hole in it corresponding with that in the bottles centre. You must have a confederate under the table, to thrust a lighted squib into the bottle, which will spout fire. The moment the powder has burnt itself out, take up the bottle and pour out wine to the company.

The Ascent of Aquarius.

In a four-ounce phial put one ounce of coloured water, through the cork run a glass tube nearly going down to the bottom, and cemented in the cork air tight. Put the instrument on the hob, or in hot water, and the air in the bottle will push the water before it, to try to get up the tube out of the bottle.

The Bottled Egg.

Having a bottle large enough to hold an egg, but with a mouth too small to permit its entrance in its natural condition, you have merely to soak it in strong vinegar until the shell is softened, so that you can squeeze the egg into the neck. Cold water poured

on it will restore it to its original hardness. As vinegar is often adulterated, and may not be strong enough to do this work reliably, add to *two* table-spoonfuls of vinegar, one of acetic acid.

To Pick a Coin out of Water without Wetting your Hand.

Pour a little water in a shallow bowl. Drop a Coin into it, and offer to take it out with your fingers without wetting them. You conceal in your hand some licopodium powder (to be had at a herbalists'), which you will sprinkle on the water, when it will cling to your hand and keep off all moisture; Shake your hand a little after drowing out the coin, and the powder will fall off.

To Make Water Rise from a Saucer into a Glass.

Pour water into a saucer, then light a piece of paper, which you put in a wine-glass, and on claping the glass down into the saucer, the water will be seen to rise into it.

To Change the Colouor of Liquors in varius Bottles.

All your bottles are set in a row on a table against a partition, behind which is your confederate, who can pour certain liquors, as directed, into vases there communicating by means of a secret pipe with, the bottles in exhibition. 1st. To change yellow to green. In the bottle, tincture of saffron; your confederate, at your signal, pours tincture of red roses into the vase cosresponding. 2nd. Red to blue. *Bottle,* tincture of red roses; *vase,* spirits of hartshorn. 3rd. Blue to cremson. *Bottle,* violet dye; *vase,* spirits of sulphur. 4th. Blue to violet. *Bottle,* violet dye; *vase,* a solution of copper. 5th. Brown to yellow. *Bottle* brandy; *vase.* diluted vitriol. 6th. Red to black. *Bottle,* tincture of red roses; *vase,* diluted vitriol, 7th. Green to red. *Bottle,* solution of copper; *vase,* tincture of *cyanus.* 8th. To take away and restore green. *Bottle,* tinctrue of

roses; *vase*, first change, spirits of nitre; second, oil of tartar. 9th, Red to black, and red again. *Bootle*, tincture of roses; *vase*, first, solution of vitriol; second, oil of tartar. 10th. To make a colourless liquid turn black; become clear, and again turn black. *Bottle*, infusion of galls; *vase*, first, solution of vitriol; second, oil of vitriol; third, oil of tartar.

To Make a Colour with Two Colourless Liquids.

Infuse a pinch of rose- leaves in spirits of wine, but not so strong as to show any tint. Pour in a few drops of spirits of nitre, also a colourless liquor, and it with turn it red. For orange, pour a few drops of lime-water on a solution of corrosive sublimate (*note*, deadly poison), and you will have a lovely orange hue. For yellow, oil of tartar on a dissolution of Mercury. For black or grey, a solution of salts of saturn to a solution of vitriol.

To Make Wine Float on Water.

Half fill a glass with water, put in a piece of the crumb of bread as big as a walnut; on it pour wine, which will keep on top without intermingling. Or over the glass, half filled as before, place a piece of thin muslin, and gently strain the wine or brandy through the muslin, when it will remain on top of the water.

To Fireproof your Hand.

Equel parts of oil of petroleum, rock-oil, fine lard, mutton tallow, and quicklime are to be mixed together until forming one substance. Distil it over burning charcoal, and save the water which results. It can be burnt on the hand without any harm being done.

To make a Party Look Hideous.

Dissolve salt and saffron in spirits of wine, in which saok, a wick,

and lighting it where no other lamps are burning, fair people will green, and the red of cheeks and lips become deep olive-green.

Incombustible Substances.

Paper dipped in alum-water and dried, two or three times wil be found to defy the action of the flame of a candle.

To Copy a Seal

In magical performences, it is often necessary to open a sealed envelope, and yet leave no evidence of your having broken the wax. You take an impression of the seal by smartly striking a piece of soft lead on it. Break the seal and read the enclosure, fuse the wax again by directing the tube of a blow-pipe on it, and seal with the lead reverse. No trace will remain of the seal having been tampered with.

To Break a Stick Laid on Two Glass full of Water, without Breaking them or Spilling the Water.

Place the two wine-glasses, filled up with water, on a very level table, or, better still, on two benches of the same height. Lay the stick on the edge of the glasses, one end on each, and strike it in the middle smartly with another stick. You will break it in halves without injuring the glasses.

Explanation.—The stick B, a thin one, tapering to a point each way from the centre, has its ends on the edge of the glasses, A A.

To Boil without Fire.

Throw some brass filings into a bottle containing some aqua-s, and a great effervescence will occur, with such a heat that hand would be burnt against the bottle.

roses; *vase*, first change, spirits of nitre; second, oil of tartar. 9th, Red to black, and red again. *Bootle*, tincture of roses; *vase*, first, solution of vitriol; second, oil of tartar. 10th. To make a colourless liquid turn black; become clear, and again turn black. *Bottle*, infusion of galls; *vase*, first, solution of vitriol; second, oil of vitriol; third, oil of tartar.

To Make a Colour with Two Colourless Liquids.

Infuse a pinch of rose- leaves in spirits of wine, but not so strong as to show any tint. Pour in a few drops of spirits of nitre, also a colourless liquor, and it with turn it red. For orange, pour a few drops of lime-water on a solution of corrosive sublimate (*note*, deadly poison), and you will have a lovely orange hue. For yellow, oil of tartar on a dissolution of Mercury. For black or grey, a solution of salts of saturn to a solution of vitriol.

To Make Wine Float on Water.

Half fill a glass with water, put in a piece of the crumb of bread as big as a walnut; on it pour wine, which will keep on top without intermingling. Or over the glass, half filled as before, place a piece of thin muslin, and gently strain the wine or brandy through the muslin, when it will remain on top of the water.

To Fireproof your Hand.

Equel parts of oil of petroleum, rock-oil, fine lard, mutton tallow, and quicklime are to be mixed together until forming one substance. Distil it over burning charcoal, and save the water which results. It can be burnt on the hand without any harm being done.

To make a Party Look Hideous.

Dissolve salt and saffron in spirits of wine, in which saok, a wick,

and lighting it where no other lamps are burning, fair people will look green, and the red of cheeks and lips become deep olive-green.

Incombustible Substances.

Paper dipped in alum-water and dried, two or three times will be found to defy the action of the flame of a candle.

To Copy a Seal

In magical performences, it is often necessary to open a sealed envelope, and yet leave no evidence of your having broken the wax. You take an impression of the seal by smartly striking a piece of soft lead on it. Break the seal and read the enclosure; fuse the wax again by directing the tube of a blow-pipe on it, and seal with the lead reverse. No trace will remain of the seal having been tampered with.

To Break a Stick Laid on Two Glass full of Water, without Breaking them or Spilling the Water.

Place the two wine-glasses, filled up with water, on a very level table, or, better still, on two benches of the same height. Lay the stick on the edge of the glasses, one end on each, and strike it in the middle smartly with another stick. You will break it in halves without injuring the glasses.

Explanation.—The stick B, a thin one, tapering to a point each way from the centre, has its ends on the edge of the glasses, A A.

To Boil without Fire.

Throw some brass filings into a bottle containing some aquafortis, and a great effervescence will occur, with such a heat that your hand would be burnt against the bottle.

The Dancing Egg.

On some eggs being brought you, place among them one empty shell, to which is fastened a long hair with a bent pin (like a fish-hook) at the large end. You will require your wand, or borrow a light, short cane, and as you move about, hook the bent pin in your coat. Place the plate of eggs on table before you, and put the wand under the hair, when, on drawing back the body and thrusting the hand forward, the eggs will run up the wand, and can be made to caper very amusingly. If you can procure a length of raw silk thread, it will be found stronger and better than a hair.

To make a Straw Cross Turn, by Pouring on it Two or Three Drops of Water.

Cut a finger-length of straw, and turn the end secretly before announcing this trick. When it is turned, with another bit or straw make a cross, which you must stick in a crack of the table. When you pour water on the top of the straw, it penetrates into the bend you have made, which turns; and the cross has the appearance of turning, although in fact it is fixed.

The Link-boys.

Place two persons on their knees, opposite to each other; each is to kneel on one knee, with the other leg in the air. Give to one of them a lighted candle, requesting him to light that of the other person. This is exceedingly difficult to do, both being poised in equilibrium on one knee, and liable to tumble down at the slightest disarrangement of position.

The Magic Drinking-Glass
A Proof that it is easier to make pure Wine than to drink it.

Every one knows that really pure wine is a beverage so rare

and precious that it deserves more honour than that of being [illegible] out of an ordinary drinking-glass. Here is one of silver, of an elegant shape! And since, thank to our conjuring science, we have the happiness of possessing some pure wine, unadulterated with water or other mixtures, we will drink it out of this handsome cup, into which I will pour it with all the honour due to so excellent a tonic.

Hand the cup on a tray to that gentleman there who is, I can say, a connoisseur offer it to any one who wishes to taste unmistakably pure wine. How's this—you bring me the glass back as full as when you took it! Nobody has been able, you tell me, to get his lips near the precious liquor. Truly, this is a strange kind of glass, with this open-work border all round it, half-an-inch in deep. It is elegant certainly, but some what inconvenient to drink out of, for the liquid is spilled before it can reach the mouth. Perhaps, also, you have not tried to drink without lifting the glass from the table. You think that it is absolutely impossible to do so. On the contrary, I am about to have the pleasure of proving to you that it is perfectly easy. I begin. You see, I have drunk it to the last drop without spilling any, and the glass is now empty. Do not forget the lesson.

It will be of little service, however, to any one who does not happen to be aware that the vessel has a double bottom, into which the wine descends slowly, while the magician sucks it up, gradually, by one of the four tubes parallel with the sides of the glass, with and the lower ends resting in this double bottom. He may thus not only empty the glass, but drink a dozen bottles of wine out of it without incurring the reproach of imbibing to excess.

A Magic Picture, representing alternately Summer and Winter.

Draw on cardboard a landscape scene, in which the ground the trunks of the tree, and the branches, are painted with the ordinary colours, appropriate to the subject, but draw and wash over the grass and the foliage with the liquid below described. You will then have

[illegible] which, in the ordinary temperature of the air will preser the aspect of a country during the winter, when trees and earth ar [illegible] of their verdure. Warm it sufficiently, but not too much [illegible] it covered with leaves and herbage as in spring.

For the liquid for producing this effect,—

Take some zaffer, that is, that metallic earth of cobalt which gives the blue colour to zaffer, and which may be obtained at any wholesale chemists, and *digest* it in aquaregia. Dilute this mixture, which is highly caustic, with pure water, and use it to paint the verdure of your picture. It will be invisible until warmed, when all the parts touched with it will appear in green.

A Colour which Appears and Disappears at Will.

Take a glass bottle; put into it some volatile alkali, in which you have dessolved copper filings, to produce a blue liquor. Present the bottle to some one to cork, jesting a little with him, and, to the great surprise of the company, it will be observed that the colour disappears as soon as the cork is put in. You easily make it reappear by uncorking the bottle, which does not seem the least surprising part of the matter.

The Inexhausbible Bottle

Who has not, in his youth, when the world-renowned Hokey Pokey, ex.-King of the Cannonball Islands, and present Monarch, of the Realm of Magic, Came forward with his inexhaustible bottle, asked for thimbleful of sherry, maderia, lemonade, brandy, whisky, ale, or milk and had it poured out for him, too, among the different draughts for fifty others, during full fifteen minutes? And who, not having shared in the performance of the feat, has not heard or read of it? Scarcely one of our readers. There are volumes of com-

mentaries and suppositions upon the proceeding, and many an inquisitive genius has sought for the secret of the miracle without finding it. We propose to elighten you entirely upon the subject.

The mysterious bottle of a hundred liquors contains five compartmets, quite separated, and with a small tube as the outlet of each, which runs down the neck almost to the mouth. Up a line parallel with its sides, there is a series of holes, like those of a flute or fife, corresponding with the divisions. Here again is applied that principle of the pressure of the air on fluid bodies which is the active agent in the preceding feat. As long as the holes are stopped up, the contents of the five compartments cannot flow out.

Preparations.—In four of the compartments are put such liquors as are most in vogue, and in the fifth water in which a little lump sugar has been dissolved. A space is left in the centre of the bottle for wine. When the wine has been all poured out to the spectators—using very small glasses, which hold scarcely more than two thimblefuls—much astonishment will be caused by the magician saying that he can still supply any quantity of different liquors to the still unsatisfied.

Performance.—You take up the bottle in such a way that your five fingers stop up the five holes spoken of, they being made convinient for that purpose. For precaution's sake, you will have committed to memory the order of the liquors, by the alphabetical sequence in the first letters of their names, for instance brandy would be B; curacoa, C, gin, G, maraschino, M, rum, R, or 1, 2, 3, 4, and 5, either making the orifice covered by the little finger or that by the thumb first or last, as you please. Every time one of the liquors in the compartments is called for. You lift the finger closing the small hole necessary to set the desired liquor flowing, and when the glass is full, stop it up, to go on to open the next one named. There are cases when some liquor will be called for which you have not got, but the sweetened water will baffle that puzzler's attempt to catch you napping. Some of the glasses with which you will have the silver or y filled, classed regularly have at the bottom of them a drop or so

of such essences as will give the sugar-and-water the flavour of the desired drink. There will always be persons among the audience whose reputation as wine-tasters is founded on mere assumption and these are the more easily deceived, as they will hasten to declare their surprise at tasting *Château Cheatem*, of such unheard-of savour, out of the mysterious bottle.

This trick has been varied to enable the performer to pour milk, tea, cocoa, chocolate, etc,. out of tea or coffee pots, but it is only the shape of the vessel which has been altered, as the principle remains the same in all.

Enigmas.

1st. On the first face of the first tablet.

The king is my subject,
 The victor my clave;
I hurl down the strong,
 And conquer the brave:
I deal Romeos death,
 And inspire the toast,
And wreak the most harm
 On these love me most.

LOVE.

2nd. On the first face of the second tablet.

We brothers are, quite speechless,
 Yet many a word we pass;
In company work, although
 Part are of the higher class.
The red roof over our heads
 Is smooth as a croquèt-lawn;
Our prison-door of ten opes,
 But we stay till out we're drawn.

THE TEETH.

3rd. *On the first face of the third tablet.*

In the world I make some noise
At every step I take,
And with no legs or wings
With my master journeys make
If I suit him very well,
He wishes to have me old;
And yet, to last him more,
I very oft am *sold.*

SHOE

4th. *On the first face of the fourth tablet.*

Often I'm stolen, but yet I'm left
Where I was before happened the theft.
Enclosed in a chest, remote from the light,
I die whenever I'm brought into sight.

HEART

5th. *On the back of the first tablet.*

Like a long thin snake I trail
Along my figure frail;
I respect to none accord—
I'd trip up a gouty lord.
In my holes I rest all day,
But at night I come away.

BOOT-LACE.

6th. *On the back of the second tablet.*

In the palace I am found,
And the hut; e'en on the ground.
The word, when weary, seeks my place,
I'm the child's warm friend; the old
Rate me so, too, when all's cold,
And for me pluck the fowls and geese.

BED.

7th. *On the back of the third tablet.*

When my *first* is at its height,
My *second* should be strong,
To get its ardent power under;
And my *whole's* a thing of might
No eyes to it belong,
Yet sight; no tongue, but voice of thunder.

FIRE-ARMS.

8th. *On the back of the fourth tablet.*

No one drowns in my oceans,
None till on my broad downs;
I own not a hovel,
Yet I boast of huge towns.
I reduce to an inch
Mile on mile of great works,
And I range at my will
From Australians to Turks.

MAPS.

Variation, with Numbers or Letters.

Instead of writing names of cards on the two faces of the dial-plate, son can divide them into twenty-four equal spaces, and in each put a figure or a letter of the alphabet, using I for J, and V for U to save the two extra letters of the twenty-six.

Arrange the figures regularly from 1 to 12, in the order shown in the following table-

ORDER OF THE NUMBERS.

On the 1st face A.	On the 2nd face B.	Sum of the two opposite numbers on each face.	Numbers diametrically opposite
1	11	12	..
10	10	..	2
6	3	7	..
5	4	9	..
3	5	8	..
9	2	11	..
12	12	..	12
4	6	10	..
7	7	..	7
9	9	..	9
8	8	..	8
11	11	..	11

By this arrangement, the addition of any one of the numbers 1, 2, 3, 4, 5, 6, on one of the faces A and B, to the number on the other face directly opposite it forms a number like that diametrically opposite it. Consequently, if, having two magnetic needles, one of which has its north pole at this point, and the other the south pole at its point, and making one of these needles turn successively on both faces of the dial, the sum of the two numbers it points out will make the same as that which the other needle will indicate on only one or the other of the faces.

The transposition of the numbers of this table on the face is made by transcribing in the order of dial A from right to left, and of dial B, from left to right, as in the illustrations. Only thus will the numbers be correctly placed. This circular row of numbers can be placed on the same circle as the cards in the previous trick.

Performance.—Into a box or bag with several divisions, put the numbers, written on small square cards, the numbers 1 to 12 in one of the compartments, and in another numbers like that pointed at on the face by the magnetic bar. You draw different numbers out of the bag or box, and after showing them, return them. Presenting to a person the division of your box or bag in which are the many similar numbers you beg him to take one out at random, and hide it in his closed hand. Then you offer to make the needle tell me what is the number, either in one time or two, which you can do by using one or the other of the needles. If it is to be pointed out at once, you can give him the choice of one of the dial-plates.

Note.—The box or bag with the numbers being in several compartments, recreation can be varied still more by putting in a third division other similar numbers, so that two different numbers drawn could be pointed out on the two faces of the dials.

To give a Shock to any one Opening a Door.

Having formed a line of communication along the floor, from the inside of the room to the landing without (or the next room, as the

con

The instant a person touches the knob or key to open the door, and you bring the knob of the charged jar up to the lock, the electric fluid will dart through the key-hole, having no other means of returning to the outside of the jar but through the hand, arm, body, and legs of the person to continue its course by the floor, and return, and your own limbs and body, to the outer coating of the jar. You will feel the shock as well as the victim, but the latter will be the more deeply affected, from his not having expected such a reception.

To Draw Fire from Water in a Glass Jar.

Fill a glass vase or jar A two-thirds full. Put into another vase of metal B, sufficient water to make the water contained in both A and B, when A, is plunged into the latter, stand at the same height. Into the water of A, drop the end of the conductor chain. Take care that A is not wet in the part above the water, or a communication between the two surface will be established.

When the conductor is electrified, and the inside of A thereby charged, plunge into the dish, B, the end, C, of the discharging-rod, C, D, and next bring the other end, D, to the surface of the water in A.

The jar, A, will be discharged with a sharp spark, which will dart out of the water itself and if, instead of plunging the discharger into the water in B, you put your finger in it, and draw the spark with the other forefinger, you will receive the shock.

To set Spirits of Wine on Fire by Electricity.

Having filled a large spoon or ladle with spirits of wine, a little heated (in electrical weather), and being yourself electrified, the touch of your finger to the spirits will make it inflame at once.

The same effect will take place if a person, insulated on the plate, and electrified, holds the ladle in his hand, and lets another person, not electrified, draw the spark, and *vice versâ.*

Observation.—The spirits of wine can be set on fire by any non-electrical body, the same as with the finger, provided that such metals are used as are particularly apt to excite the strongest sparks.

The Crystal Cash-box; or, How to send Money From Town to Town without a Post Office Order.

Let us suppose that you wish to send from London to Liverpool some of money—say a pound—in eight half-crowns, which I shall beg to borrow from among the company. Kindly mark them so that you will know them again. Thank you.

I take them and return to my little stage, so as to be as far as possible from the audience (here the performer neatly exchanges the borrowed coins for another pile of coin, exactly alike, either by putting them on the table, where a trap performs the substitution instantly under his very hand, or by means of the inside shelf of the table).

If you are agreeable, the room will be Liverpool, and I London, and from here I shall send you the coin without any fear of robbers by the road.

There is no other apparatus required than this crystal casket, just brought timely in to me, and no secret but the way to use it, which is equally simple.

Yonder are two rings in the ceiling, and the casket having one each side of it, we can hang it up with these two cords with hooks very easily.

Thus no one need lose sight of it for one instant, and as it is of glass, it can be seen through. We will even swing it to and fro, so as to expose it more fully. I return to my place.

You remember that I represent London, and you Liverpool, and that the swinging box is your municipal treasury, into which I have to put a pound. I take the pile of half-crowns (a trap carries it away from under the performer's hand) and fling them into the casket. Hark to the crash and jingle! That proves they safely reached their destination. Moreover, you can see them inside the box. And, over and above those pieces of confirmation, we will go open the coffer, take out the coins, and return them to you. Since every person recognizes his mark on them, we need only add, that this is a well-tested means of sending money speedily, without troubling bankers.

Explanation.—For though we described to the audience what they saw without the telling, there is something unseen as well as untold.

The two rings of the ceiling, by which the casket was suspended, are set in a neatly-concealed tube, which runs along within the ceiling to the wall, where it goes down inside to the spot where your assistant waits. This tube contains a copper wire, which, when put in contact with the electric battery, makes a little spring act which is in the rings. This spring pushes a second spring, hidden under the upper hooks of the suspension cords, through which runs a second wire. This wire moves similar springs in the lower hooks. These hooks act upon the rings of the box exactly as the rings of the ceiling were acted upon by the upper hooks. The springs in the box rapidly lift and let down an inside lining or false side, forming, with a second board (the outside), one of the sides of the box. Only the top and bottom are of glass. Between the side spoken of and its false bottom *is space enough to hold the marked coins, which your confederate* placed there, before he brought the casket in upon the stage. When he hears you say, "Now I fling the coin!" he lets the battery work, and the releasement of the springs lets the coins fall instantly.

The following trick is performed with a piece of mechanism similar in principle.

To Find Six times Thirteen in Twelve.

Place your figures thus :—

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.

And taking always the first and the last figure together, you say.

1	and	12	make	13	6 times.
2	,,	11	,,	13	
3	,,	10	,,	13	
4	,,	9	,,	13	
5	,,	8	,,	13	
6	,,	7	,,	13	

Tontine, a very pretty Game at Cards, with which a large Party may be Amused.

A game learnt in a moment and played with the fifty-two cards. After every person has taken a certain number of counters—say twenty—each one puts three into the pool, and the play may be begun. Some one cuts and deals one card, face up, to each person; this is the foundation of the game. He to whom a king comes takes three counters : a queen, two ; a knave, one. The ten neither takes nor gives ; the ace gives one to the next neighbour of the person who holds it ; the deuce gives two to the second player above him ; the three gives three to the *third* above. For the rest of the cards, the holders pay one or two counters, according as they are even or odd ; the four, two, the five ; one ; the six, two ; the seven, one ; the eight, two ; the nine, one. It will be seen that twenty-four counters are drawn by the players ; twenty-four are in circulation, and thirty-six are in the pool. Thus, each time that a round is played, twelve counters leave the hands of the players. When any one has no more counters, he returns his cards, and is said to be "*out.*" But he often comes in very speedily, since if an ace happens to come to his next neighbour below, that neighbour has to give him a counter ; he who is two places below him will give him two, if a deuce comes

to him, and his third neighbour below will have to pay him three, should a card with that number of spots be dealt to him. This rule causes many fluctuations of fortune. Finally, the pool belongs to him who has most counters left: but many changes take place before this catastrophe happens; and it is often the player whose circumstances have been most desperate, and who, perhaps, has been two or three times *out*, who wins the game. The excitement and constant change make this a very amusing game

To Knock your Head against a Door without Injury.

"Ladies and gentlemen, would you like me to teach you my secret for making impromptu verses? You have only to rub your forehead well, not with your hand, as Horace did of old, but by thumping your head againsts a wall." Then seem to knock your head three or four times against a door, and put your hand to your forehead, as if to deaden the pain produced by the violence of the blows. But you must do something more than merely touch the door with your head. At the same moment that you make the movements as if to knock your forehead, you ward off the blow, by the aid of the left hand, grasping the door at about the spot you pretend to strike, while the closed right hand, concealed from the audience, strikes the other side of the door.

The correspondence of the head appearing to strike at the same time as your hand strikes the blow, produces a perfect illusion.

This is similar to the means by which clowns, acrobats, and stage players, when falling, make the audience believe their heads have struck the stage, when really the blow was of their open hand at the exact time when the supposed collision seemed to occur.

The Melting Coin.

Money melting in one's hands is unhappily, one of the oldest and most common occurrences possible; but there are no hands in the

world—not even a magician's or a supernatural being's—in which this phenomenon can be realized so rapidly as in the magic handkerchief, which we will, once more, call into play.

One of the company has thrown a shilling into our handkerchief. To prove that it really is there, we take the handkerchief by the four corners. It appears like a long bag. Then with one hand, we take it up by the middle of the lower end (the centre along which it is folded.) Held thus, the handkerchief forms a sort of doll, the coin, imprisoned more closely than ever, being the head and the four ends, falling below the hand, make the flowing robes.

Now, who can deny the magician's power who, in a single second, can so melt the silver that it will pass through the imperceptible meshes in the silk which incloses it? We are about to give, to the most incredulous, this proof of an almost illimitable power. You, madam, appear to wish that the coin should be wrapped still more closely. I shall esteem myself very happy, madam, in giving you all possible satisfaction. I correct myself—to do what is simply *possible* is not enough. You, ladies, are all magicians, by your intelligence or beauty, or both combined, and if magic cannot achieve for you something more than merely what is possible, you would think, with some reason, that the conjuror's wand is less powerful than your fan, to say nothing of those bright eyes which have struck out of our lexicons the word *impossible*. Here, then is the coin, really done up in the folds of the magic kerchief. Will you, madam, order it to do its duty? Nay, better still; I beg you to hold it yourself, at the same place as I did. Can you feel the coin? Is it still in its silken prison? Yes.

Ah, madam! you are one moment too late! The shilling has already melted, and gone through the handkerchief. Here it is free, and recoined, having made its way through the folds in which you had obliged me to inclose it. Well! *this* is wonderful! It has the very same mark made by Mr. Goody on the coin we used in one of our other tricks! Mr. Goody, show your gratitude to madam for giving you back your shilling by telling her whence it has come.

Explanation.—The new coin came from our pocket, whence, while chatting, we drew it quietly, and instead of putting it in the *inside* we enveloped it really on the *outside* of the place whence the first was inclosed. When we begged a lady to hold this, we slipped our hand with the first coin under the one that was to take its place, and letting the hand glide down the inside of the handkerchief, removed the "melting coin"

The Coffer of Transformation.

You have a box with a partition in the centre and drawers opening one each way; one of them full of ribbons, or flowers, and the other having one or more birds. You ask a lady to put a ribbon or flower into the drawer of similar contents When so done, you reverse the box while putting it on your table. Declare your intention of animating the ribbons, or enunciate your belief that flowers are only undeveloped birds, and that your magic box will perform the last stage of their transformation. Open the other drawer, and let out the birds. The drawers must fit close, and the knobs be an ornament to each side.

To Make One of Three Objects Jump out of a Box.

You have a spring, an inch and a quarter wide by two and a half long, set at the bottom of an open box, and prevented from acting by the weight of a lump of sugar, laid on its upper part, in which there is a hole at the end. You show three knives, or spindles, or pencils, or such articles, of different colours, or otherwise readily known apart, and have one chosen. When you put all into the box, you set the point of the selected one into the little hole in the end of the spring. Dip your wand in some water, which you will say comes from an enchanted spring, and let a drop or two fall on the sugar. When it melts, which will be while you call out, "Spirit of sweetness and light, exert your powers!" the spring will be set free, and will shoot the knife out at your order.

A metal cup can be used for the same feat.

The Magic Snuffbox.

Make a large enough slit in the side of a snuff box for a shilling to enter and come out freely; over the opening put a flap of black paper, acting like a valve. Fill the box with scented snuff. Borrow a marked shilling. Spill some of the snuff on a white paper, so as to baffle suspicion. Have the coin dropped into the box, where it sounds. When slipped out by you, of course there is no sound in the box when you shake it. At last remove the shilling, and bring it to light elsewhere. From the snuff being in it, no one will suspect you have a hole in the box.

Games with Pen, and Pencil, or Involving Mental Exertion.

After the Company have had a fair spell of Games of Action, they may be glad to sit round the table for a change and try some quieter method of amusement. A very good game, and one within the compass of the most moderate capacity, is that known as.

Consequence.

The leader hands to each player a half-sheet of note-paper and a pencil, with a request that he or she will write at the top of such paper an adjective or adjectives. Having done so, each is instructed to fold over backwards about half an inch of the paper, so as to conceal what is written. The paper is then passed on to the n[ext] player. Each is now requested to write a gentleman's name, [and] to fold and pass on the paper as before. This process is co[nti]nued until the company have written in succession—

1. One or more adjectives.
2. A gentleman's name.
3. One or more adjectives.
4. A lady's name.
5. Where they met.
6. What he gave her.

Cross Questions and Crooked Answers.

This game is usually played as follows :—The players sit round in a circle, and the first, in a whisper, asks a question and receives an answer from the second. The second person then (also in a whisper) asks a question of the third, and so on, the last person asking a question of the first. Each person then states aloud the *question he or she was asked,* and the *answer he or she received,* which of course have no connection the one with the other. Thus, suppose the questions and answers actually given to be as follows :—

Q. What do you use for your complexion?
A. Soap and water.
Q. What is your favourite study?
A. Three-volume novels.
Q. What are you going to have for dinner to-morrow?
A. Roast pork.
Q. What is the best thing to keep your head warm?
A. A good stiff hair-brush.
Q. Who hems your pocket-handkerchiefs?
A. My mother-in-law.
Q. Whom do you regard as the noblest characters in history?
A. Helen's Babies.
Q. What brought you here to-night?
A. My own legs.
Q. What gave you such a bad cold?
A. Drinking out of a damp tumbler.

These questions and answers, duly reported will produce the following combinations :—

No. 1. The question I was asked was, "*What gave you such a bad cold?*" and the answer I received was, "*Soap and water.*"

No. 2. The question I was asked, was, "*What do you use for your complexion?*" and the answer I received, was, "*Three volume novels.*"

No. 3. I was asked, "*What is your favourite study?*" and answer was, "*Roast pork.*"

No. 4. I was asked, *"What are you going to have for dinner to-morrow?"* and the answer was, *"A good stiff hair-brush."*

No 5 The question asked me was, *"What is the best thing to keep your head warm?"* and the answer I received was, *"My mother-in-law."*

No 6. I was asked, *"Who hems your pocket-handkerchief?"* and the answer was, *"Helen's Babies."*

No, 7 I was asked, *"Whom do you regard as the noblest characters in history?"* and the answer I received, was, *"My own legs."*

No. 8 I was asked, *"What brought you here to-night?"* and the answer I received was, *"Drinking out of a damp tumbler."*

This mode of playing the game (though the most usual) is subject to the disadvantage that while two of the party are exchanging confidences the rest are left unoccupied. It will be found a better plan to have a supply of slips of paper of two colours, say pink and white, and to give one of each to each player. Each player writes a question on the white paper, and passes it to his next neighbour, who then answers it on one of the pink slips of paper. All the papers being then collected, and well mixed together, are drawn in couples, white and pink together, and the question and answer on them read aloud by the leader.

Crambo.

The mode of playing this game, sometimes known as *Nouns and Questions*, is as follows.—The leader hands to each player a couple of slips of paper of different sizes or colours On the one he is to write a noun, on the other a question. The papers are then collected, well shuffled together, and drawn in pairs, so that each player gets one containing a question, which he must answer in rhyme, and one containing a noun, which he must introduce in his answer. Thus we will suppose that the question drawn by the first player is, "Are you fond of the sea?" and the noun which he is to introduce

is "Pickles." Fortunately the poetry is not expected to be of very superior quality—

"I love the sea, the deep blue sea,
But somehow it doesn't seem partial to me;
For whenever the ship gives a lurch to leeward,
My only remark is a cry for 'Steward.'
And beef and *Pickles* will tempt in vain,
Until I return to the shore again."

And second victim may have the question, "Why does a steam-engine never sit down?" and the word to be introduced, "Aunt."

"It was a puzzle of my youth, the problem of my age,
And still, in my declining years, it did my thoughts engage.—
An engine stands, it puffs, it runs from town to town,
But in its many journeyings it never once sits down."
'Why is this thus?' I said; 'Relieve my anxious mind!'
And thus my aged *Aunt* replied, in accents most refined,
'It can't sit down, because it's got a tender (hem!) behind.'"

Russian Gossip.

This is an illustration of the old adage that a story never loses in the telling. The company being arranged in a circle, the leader, in a whisper, communicates to one of them the contents of a newspaper paragraph, or some anecdote, real or fictitious. This the recipient in turn communicates to his next neighbour, and so the story passes completely round the circle, the last person relating aloud the story as communicated to him. The original narrative is then also read aloud, when it is generally found that there is scarcely one feature of resemblance between the two narratives; the extraordinary metamorphosis the story has undergone being productive of the greatest possible amusement, and occasionally some little indignation, each player thinking it scarcely possible that a story which he feels sure *he* repeated with perfect accuracy, can have got so shamefully misrepresented by the other players.

Thus A tells B that he was told by his hairdresser, that same morning, that he had heard from Mr. Jones's footman that Miss Jones had declined an offer of marriage from Sir Carnaby Jinks of the Blues, and that it was generally believed that she was in love with the brother of the clergyman who recently officiated at her sister's marriage. B tells C that A's hairdresser told his footman that Miss Jones had had an offer from Sir Something Carnaby, but that she had refused him, and that it was believed that she was in love with the clergyman who married her sister. By the time the story has been half a dozen times repeated it is stated that Miss Jones had had an offer from the celebrated Captain Burnaby, but that her brother-in-law, the clergyman, had raised great objections to the match, and that she had since eloped with the footman's brother, who was a hairdresser in the Burlington Arcade.

How? When? and Where?

This is a game having some little resemblance to that of the "Twenty Questions." One member of the company leaves the room, and a word, generally *one* admitting of more than one interpretation, is chosen in his absence. On his return he asks each person in succession, "How do you like it?" the person interrogated being bound to return an appropriate answer. He then inquires in the same way of each, "*When* do you like it?" and finally, unless he has previously guessed the word, "*Where* do you like it?" If he he succeeds in guessing, he is called upon to declare whose answer furnished him with the clue to the secret, when the person who gave such answer must in turn retire and become the questioner. We will suppose, for example, that the word chosen is "Glass." The word, it will be observed, is perceptible of several meanings, as windowg-lass, looking-glass, drinking-glass, weather-glass, opera-glass, &c.

The questioner proceeds to inquire, "*How* do you like it?" and receives the following answers. 1. Full. 2. Bright. 3. High. 4. Clear, 5. Strong. 6 Rising. 7. With ice in it. 8. With something hot.

To the second question, "*When* do you like it?" the replies may be—1. When I am smoking a pipe. 2. When I wish to be very good-looking. 3. After dinner. 4. After supper. 5. When I am going to see my lady-love. 6. When I am cold. 7. When I am shaving. 8. When I am out of spirits.

"*Where* do you like it?" may be answered as follows:—1. Wherever I can get it. 2. Hanging up in the hall. 3. On my dressing-table. 4. Facing a pretty girl, with myself behind her. 5. At the theatre. 6. On a race-course. 7. In the captain's cabin. 8. Close by a full bottle, &c., &c.

We may safely assume that the questioner has ere this guessed the word, and will leave the reader to decide which of the answers is most likely to have directed him to the discovery of the secret.

Throwing Light.

This is not unlike the game last described, but, we venture to think, decidedly superior. Two of the company agree privately upon a word (which, as before, should be one susceptible of two or three meanings,) and interchange remarks tending to *throw light* upon it. The rest of the players do their best to guess the word, but when either of them fancies he has succeeded, he does not publicly announce his guess, but makes such a remark as to indicate to the two initiated that he has discovered their secret. If they have any doubt that he has really guessed the word, they challenge him, *i.e.*, require him to name it in a whisper. If his guess proves to be right, he joins in the conversation, and assists in throwing light on the subject; but if, on the other hand, he is wrong, he must submit to have a handkerchief thrown over his head, and so remain, until by some more fortunate observation he shall prove that he really possesses the secret.

We will give an example. Mr. A. and Miss B. have agreed on "Bed" as the word, and proceed to throw light upon it; alternating upon its various meanings of a place of repose, a part of a garden, or the bed of a river.

Miss B. I don't know what your opinion may be, but I am never tired of it

Mr. A. Well, for my part, I am never in a hurry, either to get to it or to leave it

Miss B. How delightful it is after a long tiring day!

Mr. A. Yes But it is a pleasure that soon palls. The most luxurious person does not care for too much of it at a stretch

Miss B Oh! don't you think so? In early spring, for instance, with the dew upon the flowers!

Mr. A. Ah! you take the romantic view. But how would you like it beneath some rapid torrent, or some broad majestic river

Miss C. (*thinks she sees her way, and hazards a remark*) Or in a *souché*!

Mr A. I beg your pardon. Please tell me, in a whisper, what you suppose the word to be?

Miss C. (*whispers*), Fish! What! isn't that right?

Mr. A. I am afraid you must submit to a temporary eclipse. (*Throws her handkerchief over her face*)

Mr. A. to Miss. B. You mentioned spring, I think. For my own part, I prefer feathers.

Mr. D (*rashly concludes, from the combination of "spring" and "feathers," that* spring-chickens *must be referred to*). Surely you would have them plucked?

Mr. A. (*looks puzzled*). I think not May I ask you to name your guess? Oh, no, quite out. I must trouble you for your pocket-handkerchief.

Miss B. It is curious, isn't it? that they must be made afresh every day.

Mr A. So it is; though I confess it never struck me in that light before. I don't fancy, however, that old Brown the gardener makes his quite so often.

Miss B. You may depend that he has it made for him, though.

Miss C. (*from under the handkerchief*). At any rate, ac - -

ing as he makes it, his fate will be affected accordingly. You know the proverb?

Mr. A. (removing the handkerchief). You have fairly earned your release. By the way, do you remember an old paradox upon this subject, "What nobody cares to give away, yet nobody wishes to keep"?

Miss E. Ah! now you have to out the secret. I certainly don't wish to keep mine for long together, but I would willingly give it away if I could get a better.

Miss B. Tell me your guess. (Miss E. *whispers*). Yes, you have hit it. I was afraid Mr. A.'s last "light" was rather too strong.

And so the game goes on, until every player is in the secret, or the few who may be still in the dark 'give it up' and plead for mercy. This, however, is a rare occurrence, for, as the company in general become acquainted with the secret, the 'lights' are flashed about in a rash and reckless manner, till the task of guessing becomes almost a matter of course to an ordinarily acute person.

Proverbs.

This is another "guessing" game. One of the party retires, and in his absence the company fix on some popular proverb, *e.g.*, "When the cat is away the mice will play." On the return of the interrogator, he puts a question to each of the company in turn, when the persons addressed are bound to introduce in their respective answers, each one word of the proverb in proper order. Thus the first questioned must introduce into his answer the word "when;" the second, the word "the;" the third the word "cat," &c. As soon as the questioner has succeeded in guessing the proverb chosen he names it, and the person through whose answer he was led to the discovery takes his place. Thus, the examination may proceed as follows:

Q. (*to first person*). Is the proverb chosen a very difficult one to guess?

A. *When* you have guessed it you will be able to decide that question yourself. I won't venture to give an opinion.

Q. (*to second person*). What do you say in the matter, Miss A? Do you think I shall succeed in guessing it?

A. All *the* worse for you if you do not.

Q. The answers seem quite oracular to-night. *Mr. E.*, I h you will be more precise. Is there any news in the paper to-nigl

A. Very little; but this is the dull season, and if an woman's *cat* kittens, the reporters are glad to make a note of it.

And so the questions and answers proceed. It will be obvi that, in the choice of a proverb, those containing any very out-of-t way word are best avoided, not only on account of the difficulty working such word naturally into the answer, but from the fact t by force of association, such word is likely to call to memory t whole proverb. Thus the words "cat" and "mice," in the pres instance, are extremely likely to betray the secret.

The following proverbs will be found well adapted for purpose of this game, as they are tolerably free from those speci awkward words we have referred to.

Better late than never.
Safe bind, safe find.
A friend in need is a friend indeed.
A bird in the hand is worth two in the bush.
Faint heart never won fair lady.
Two are company, but three are none.
Half a loaf is better than no bread.
Look before you leap.
Let them laugh that win.
Make hay while the sun shines.
Still waters run deep.
Waste not, want not.
Out of sight, out of mind.
Of two evils, choose the least.
One good turn deserves another.

ing as he makes it, his fate will be affected accordingly. You know the proverb?

Mr. A. (*removing the handkerchief*). You have fairly earned your release. By the way, do you remember an old paradox upon this subject, "What nobody cares to give away, yet nobody wishes to keep"?

Miss E. Ah! now you have to out the secret. I certainly don't wish to keep mine for long together, but I would willingly give it away if I could get a better.

Miss B. Tell me your guess. (Miss E. *whispers*). Yes, you have hit it. I was afraid Mr. A.'s last "light" was rather too strong.

And so the game goes on, until every player is in the secret, or the few who may be still in the dark 'give it up' and plead for mercy. This, however, is a rare occurrence, for, as the company in general become acquainted with the secret, the 'lights' are flashed about in a rash and reckless manner, till the task of guessing becomes almost a matter of course to an ordinarily acute person.

Proverbs.

This is another "guessing" game. One of the party retires, and in his absence the company fix on some popular proverb, *e.g.*, "When the cat is away the mice will play." On the return of the interrogator, he puts a question to each of the company in turn, when the persons addressed are bound to introduce in their respective answers each one word of the proverb in proper order. Thus the first questioned must introduce into his answer the word "when;" the second, the word "the;" the third the word "cat," &c. As soon as the questioner has succeeded in guessing the proverb chosen he names it, and the person through whose answer he was led to the discovery takes his place. Thus, the examination may proceed as follows:

Q. (*to first person*). Is the proverb chosen a very difficult one to guess?

A. *When* you have guessed it you will be able to decide that question yourself. I won't venture to give an opinion.

Q. (*to second person*). What do you say in the matter, Miss A? Do you think I shall succeed in guessing it?

A. All *the* worse for you if you do not.

Q. The answers seem quite oracular to-night. *Mr. B.*, I hope you will be more precise. Is there any news in the paper to-night?

A. Very little; but this is the dull season, and if an old woman's *cat* kittens, the reporters are glad to make a note of it.

And so the questions and answers proceed. It will be obvious that, in the choice of a proverb, those containing any very out-of-the-way word are best avoided, not only on account of the difficulty of working such word naturally into the answer, but from the fact that by force of association, such word is likely to call to memory the whole proverb. Thus the words "cat" and "mice," in the present instance, are extremely likely to betray the secret.

The following proverbs will be found well adapted for the purpose of this game, as they are tolerably free from those specially awkward words we have referred to.

Better late than never.
Safe bind, safe find.
A friend in need is a friend indeed.
A bird in the hand is worth two in the bush.
Faint heart never won fair lady.
Two are company, but three are none.
Half a loaf is better than no bread.
Look before you leap.
Let them laugh that win.
Make hay while the sun shines.
Still waters run deep.
Waste not, want not.
Out of sight, out of mind.
Of two evils, choose the least.
One good turn deserves another.

Marry in haste, repent at leisure.
Fine feathers make fine birds.
Make the best of a bad bargain.
They laugh best who laugh last.
Never put off till to-morrow what you can do to day.

There is another, and we think rather stupid form of this game, known as "Simultaneous Proverbs." A proverb having been chosen, and a word assigned to each player, all at a given signal shout simultaneously each his or her own word, and from the Babel of sound thus created the proverb must be guessed.

The Hidden Word.

The game which goes by this name is a variation of that last described. The players agree on a single word, and each has to introduce that word in his answer. In all other respects the game is played in the same manner as "Proverbs."

What is my Thought Like?

One player privately thinks of some object, and then asks each of the others in succession, "What is my thought like?" Each names some object, as 1. A rose. 2. A brook. 3. A wedding-ring. 4. The Christy Minstrels. 5. A blister. 6. A pair of boots &c., &c.

The leader then declares what his thought was, and calls upon each player to prove the resemblance of the articles named by him. If he fails he must pay a forfeit.

Thus we will suppose that the leader declares his thought to have been the play of "Our Boys," and interrogates as follows:—

Q. Why are "Our Boys" like a rose?
A. Because they are never seen without a *Thorne.*
Q. Why are "Our Boys" like a brook?
A. Because they "go on for ever."

Q Why are they like a wedding-ring?
A Because there is no end to them.
Q. Why are they like the Christy Minstrels?
A. Because they never perform out of London
Q. Why are they like a blister?
A Because they never fail to draw.
Q. Why are they like a pair of boots?
A. Because they are almost always seen together.

It is not to be expected that the replies, given, as they are, impromptu, should have much wit or neatness about them Once in a way, however, a really happy resemblance is hit upon.

He can Do Little who Can't Do This.

This is another "sell" of almost childish simplicity, but we have seen people desperately puzzled over it, and even "give it up" in despair

The leader takes a stick (or poker) in his left hand, thence transfers it to his right, and thumps three times on the floor, saying, "He can do little who can't do this" He then hands the stick to another person, who, as he supposes, goes through exactly the same performance, but, if he does not know the game, is generally told, to his disgust, that he has incurred a forfeit his imitation not having been exact.

The secret lies in the fact that the stick, when passed on, is first received in the *left hand*, and thence transferred to the *right* before going through the thumping ceremony. An uninitiated person almost instinctively takes the stick in the right hand at once.

Napoleon.

Napoleon is a game of very modern introduction; indeed, it is yet so young that its rules can hardly be said to have received any final sanction from the leading card authorities. We can, however, recommend it as a brisk and lively game, possessing a good many

Marry in haste, repent at leisure.
Fine feathers make fine birds.
Make the best of a bad bargain.
They laugh best who laugh last.
Never put off till to-morrow what you can do to day.

There is another, and we think rather stupid form of this game, known as "Simultaneous Proverbs." A proverb having been chosen, and a word assigned to each player, all at a given signal shout simultaneously each his or her own word, and from the Babel of s und thus created the proverb must be guessed.

The Hidden Word.

The game which goes by this name is a variation of that last described. The players agree on a single word, and each has to introduce that word in his answer. In all other respects the game is played in the same manner as "Proverbs."

What is my Thought Like?

One player privately thinks of some object, and then asks each of the others in succession, "What is my thought like?" Each names some object, as 1. A rose. 2. A brook. 3. A wedding-ring. 4. The Christy Minstrels. 5. A blister. 6. A pair of boots &c., &c.

The leader then declares what his thought was, and calls upon each player to prove the resemblance of the articles named by him. If he fails he must pay a forfeit.

Thus we will suppose that the leader declares his thought to have been the play of "Our Boys," and interrogates as follows:—

Q. Why are "Our Boys" like a rose?
A. Because they are never seen without a *Thorne.*
Q. Why are "Our Boys" like a brook?
A. Because they "go on for ever."

Q. Why are they like a wedding-ring?
A. Because there is no end to them.
Q. Why are they like the Christy Minstrels?
A. Because they never perform out of London.
Q. Why are they like a blister?
A. Because they never fail to draw.
Q. Why are they like a pair of boots?
A. Because they are almost always seen together.

It is not to be expected that the replies, given, as they are, impromptu, should have much wit or neatness about them. Once in a way, however, a really happy resemblance is hit upon.

He can Do Little who Can't Do This.

This is another "sell" of almost childish simplicity, but we have seen people desperately puzzled over it, and even "give it up" in despair.

The leader takes a stick (or poker) in his left hand, thence transfers it to his right, and thumps three times on the floor, saying, "He can do little who can't do this." He then hands the stick to another person, who, as he supposes, goes through exactly the same performance, but, if he does not know the game, is generally told, to his disgust, that he has incurred a forfeit, his imitation not having been exact.

The secret lies in the fact that the stick, when passed on, is first received in the *left hand*, and thence transferred to the *right* before going through the thumping ceremony. An uninitiated person almost instinctively takes the stick in the right hand at once.

Napoleon.

Napoleon is a game of very modern introduction; indeed, it is so young that its rules can hardly be said to have received any sanction from the leading card authorities. We can, however, recommend it as a brisk and lively game, possessing a good many

original features and demanding the exercise of just enough judgment to make it interesting.

Napoleon is played with the full pack of fifty-two cards, and by any number of players, five or six forming the most desirable number. Two packs are generally used alternately, as at whist.

Five cards are dealt, one by one, to each player. The elder hand is then called upon to declare whether he will stand or "pass." The latter phrase does not denote that he retires from the game for that round, as at Loo, but simply that he does not feel strong enough to challenge the whole table to prevent his making a given number of tricks. Thus he may say, "I stand for one," "for two," "for three," and so on, meaning that he will undertake (with the privilege of naming the trump card, to which we shall hereafter advert) to win that number of tricks. Any subsequent player who may stand must do so for a larger number of tricks than that named by any former player. Each player is called upon to exercise his option in turn, when the player who has stood for the largest number of cards proceeds to lead, playing against all the rest of the table. The first card he leads determines the trump suit, and this of course gives the "stand" player, as he is called, a very great advantage. If he is successful in winning the number of tricks for which he stood, every other player has to pay him for each so won the value (previously determined) of a trick. If he fails, he pays each player in like manner.

Every player must follow suit, if able, but is not bound to trump, or to head the trick.

Any player may announce "Nap," *i. e.* that he will undertake to win all five tricks. Should he succeed, he wins double stakes all round (in some companies, treble or quadruple); should he fail, he pays a single stake for each trick.

As there ia no value in the deal, there is no penalty for a misdeal, but the dealer deals again. With six players and upwards, the dealer generally deals no cards to himself, but notwithstanding receives or pays, as the case may be, like the rest of the non-standing players. If the "stand hand" plays with a wrong number of cards, and wins,

his winnings are cancelled. Any player other than the stand hand playing with the wrong number of cards, or playing out of turn, or exposing a card, forfeits the value of three tricks to the stand hand, and receives nothing if the stand hand loses. A player revoking is "Napoleoned," *i. e.* he has to pay the value of five tricks to the stand hand. The cards are played over again, and should the stand hand lose, the revoker receives nothing.

A player is entitled to inquire how many tricks the stand hand stood for, and how many he has already made.

Sometimes the interest of the game is heightened by the addition of a pool (known as "Kitty)." The pool is started by each player contributing the value of a trick, the dealer the value of two tricks, and every succeeding dealer the value of one trick. The pool accumulates until a "Nap" is made, when the winner takes it, in addition to the other stakes, and a fresh pool is started for the next round.

An Awful Toothache.

DRAWING-ROOM FARCE IN ONE ACT.

DRAMATIS PERSONÆ.

MR ODONTO JONES (a Wealthy Dentist).
FRANK IRVING.
JIMMY TWIST, BOB GUFFIN (Burglars)
SMALLBONES (a Man-servant).
MRS. ODONTO JONES.
BELINDA (her Daughter).

SCENE—MR. JONES' *House in the Regent's Park.*
TIME—*Evening, Half-past Ten.*

SCENE.—*A Room in* MR. JONES' *house. Doors,* R, L, *and* C. *Window,* R. C. *Sideboard,* R. *Sofa, large easy-chair, table, chairs, &c. Tray of dental instruments on table, and stoppered bottle, supposed to contain chloroform.*

Enter SMALLBONES, C., *ushering in* FRANK IRVING.

SMALLBONES. This way, sir, if you please; master's partickler engaged just this minute; but if you'll take a seat, he'll be down in a jiffey. What name was you pleased to say, sir?

IRVING. Name? Oh! Say a patient wishes to see him. (*Exit* SMALLBONES, C.) I've disturbed the old boy at his supper, I suppose. Old Jones doesn't know me by sight, luckily, so there is no fear of immediate detection. Well, here I am in the enemy's territory, at any rate; that's one step gained. Now, to remain here for a couple of hours, that's the next question. Let me review the situation. Since I met Belinda at Ramsgate, I've been doing my little possible to become old Jones' son-in-law; but the old fool won't hear of it at any price, or even give me an interview, because, forsooth! he has arranged with his friend, Soper, the tallow-chandler (I should like to knock their stupid old heads together,) that my adorable Belinda shall marry Soper's noodle of a son. So, as Mr. Jones is determined Belinda shan't have me by fair means, I must try the other persuasion. Well, now for my plot. The point is to remain in this house till a little past twelve o'clock, when a cab will be waiting at the corner, and my lovely Belinda has promised to leave the roof of her stern parent, and come to the arms of a loving husband. It's now half-past ten (*looks at his watch*), and Jones retires to his pillow at half-past eleven, and is snoring violently by twenty minutes to twelve; that much I know. Now for the means! (*Takes out a newspaper.*) Here's the paragraph that suggested the glorious idea. *Daily Telegragh.* Here we are (*reads.*)

"MELANCHOLY OCCURRENCE.—A gloom has been thrown over the town of Chicklebury Parva by the sudden death of one of its most respected inhabitants. The unfortunate deceased, Mr. Wiggins, a wealthy maltster, had been suffering from severe toothache for some days, and on Saturday last decided to has the cause of his suffering extracted. Chloroform was administered, and the operation successfully performed, but the unfortunate gentleman remained insensible for a long time, and on examination it was found that life had departed. It was afterwards discovered that deceased

was labouring under extensive disease of the heart." That's the dodge I intend to try on the venerable Jones. I took chloroform four times last night, to practise coming to myself without opening my eyes, or kicking up any shindy. I've got a grinder I've wanted to get rid of for a long time, so I don't mind the sacrifice, and I rather expect that when Jones wants the unfortunate gentleman to come to himself, the unfortunate gentleman will "remain insensible for a long time," &c He can't, with any decency, turn the unfortunate gentleman's corpse out of the house, so here I remain, till I resuscitate myself to elope with my beloved Belinda. It's quite true, I might have waited outside, and Belinda might have come to me. But that wouldn't have suited *her*, dear little romantic soul! She must have a "sensation," and I flatter myself I've got the very thing to suit her. Hush, here he comes! Oh, my prophetic soul, my uncle! – I should say, "my father-in-law!" Now for it! *(puts his handkerchief to his face)*.

Enter JONES C.

JONES. Good evening sir.

IRVING. You will excuse my disturbing you so late, Mr. Jones, but I am suffering from the most excruciating toothache, and after trying various remedies in vain, I have decided on parting with the offending member.

JONES. Will you take this seat, sir? If you will allow me, sir, I will just examine your mouth. Permit me *(looks into his mouth)*. Dear, dear, this is very sad. The two molars on the left of the lower jaw, with the eye-tooth on the same side, and the carious incisor on the right, must come out; and then you'll be tolerably comfortable.

IRVING. Comfortable? I'll be d—d if I should! You must excuse my swearing, doctor; but when you talk of a man's favourite grinders in that cold-blooded manner—

Enter SMALLBONES, C., *ushering in* FRANK IRVING.

SMALLBONES. This way, sir, if you please; master's partickler engaged just this minute; but if you'll take a seat, he'll be down in a jiffey. What name was you pleased to say, sir?

IRVING. Nane? Oh! Say a patient wishes to see him. (*Exit* SMALLBONES, C.) I've disturbed the old boy at his supper, I suppose. Old Jones doesn't know me by sight, luckily, so there is no fear of immediate detection. Well, here I am in the enemy's territory, at any rate; that's one step gained. Now, to remain here for a couple of hours, that's the next question. Let me review the situation. Since I met Belinda at Ramsgate, I've been doing my little possible to become old Jones' son-in-law; but the old fool won't hear of it at any price, or even give me an interview, because, forsooth! he has arranged with his friend, Soper, the tallow-chandler (I should like to knock their stupid old heads together,) that my adorable Belinda shall marry Soper's noodle of a son. So, as Mr. Jones is determined Belinda shan't have me by fair means, I must try the other persuasion. Well, now for my plot. The point is to remain in this house till a little past twelve o'clock, when a cab will be waiting at the corner, and my lovely Belinda has promised to leave the roof of her stern parent, and come to the arms of a loving husband. It's now half-past ten (*looks at his watch*), and Jones retires to his pillow at half-past eleven, and is snoring violently by twenty minutes to twelve; that much I know. Now for the means! (*Takes out a newspaper.*) Here's the paragraph that suggested the glorious idea. *Daily Telegragh.* Here we are (*reads.*)

"MELANCHOLY OCCURRENCE.—A gloom has been thrown over the town of Chicklebury Parva by the sudden death of one of its most respected inhabitants. The unfortunate deceased, Mr. Wiggins, a wealthy maltster, had been suffering from severe toothache for some days, and on Saturday last decided to has the cause of his suffering extracted. Chloroform was administered, and the operation successfully performed, but the unfortunate gentleman remained insensible for a long time, and on examination it was found that life had departed. It was afterwards discovered that deceased

JONES. My dear sir! I regret that I should have wounded your feelings. We like to do these little things as thoroughly as possible. However, which is the tooth which more particularly troubles you?

IRVING. This is the one (*puts his finger on it*). It's been hollow for a long time, and lately it's made me hollo, I can tell you. You'll excuse the badness of the joke; I'm always like that when I'm in extreme agony. I'll trouble you to use chloroform, by the way. Though my tooth and I haven't been quite friendly lately, I fear I should feel the parting.

JONES. Chloroform! Certainly, if you wish it. I will just call up my man-servant to help me to administer it, and then I am at your service. (*Rings the bell, and selects instruments.*)

IRVING (*aside*). So far, so good. Now, then, another ten minutes, and I shall be as dead as mutton.

Enter SMALLBONES C.

JONES. Smallbones, I shall require your assistance here to administer chloroform. A jug of warm water and napkin, directly. (*Exit* SMALLBONES, C. *To* IRVING) Delightful change in the weather, sir; I fancy we shall have a warm summer.

SMALLBONES (*returning*). Wery warm, sir?

JONES. How dare you join in the conversation, sir? Go and fetch what I told you.

SMALLBONES. I worn't a-joining in no conversation. I was only arxing if you wanted the water wery warm?

JONES. Oh! the water? No, lukewarm, of course.

SMALLBONES (*aside*). Look warm, indeed! How the dooce is water to look warm if it ain't warm?

[*Exit.*

JONES. What an annoyance these servants are, sir. Our last man left us in a hurry, two days ago, and I took this fellow without

a character. *I* fear I shall have to send him away; he is so exceedingly vulgar! and his awkwardness is beyond everything.

IRVING. Perhaps you took him on the strength of his looks. He has a very prepossessing appearance.

JONES. Oh, I don't mind looks, if that was all; but—oh! here he is!

Enter SMALLBONES C., *with water and napkin.*

Come here, Smallbones. Now, I want you to hold this pocket-handkerchief close to this gentleman's nose. (*Moistens the napkin from bottle.*)

SMALLBONES (*aside*). *Blow* the gentleman's *nose!* What next, I should like to know! First I'm to get the water to look warm, and now I'm to 'old a 'andkerchief to the gentelman's nose. And the governor put in the advertisement as this was a *serious* family. Blow'd if it ain't the funniest family *I* ever come across!

JONES, Now, Smallbones. (*Gives him the handkerchief, and* IRVING *leans back in the chair.*) Now, then, not too near—about half an inch from the face.

IRVING. Stop a bit; let's have no mistake—no taking a mean advantage of my helpless situation. Mind, *this* is the tooth! Smallbody, or witness. Never mind *if* a few more are out of repair, I prefer them like that.

SMALLBONES. Right you are, sir—last but one in your left under chopper.

JONES. Smallbones, if you wish to remain in a professional family, you really must drop those horribly unprofessional expression. Now then, Sir!

(IRVING *again leans back.* SMALLBONES, *under* JONES' *directions, applies the chloroform.* IRVING *becomes insensible, and the tooth is extracted.*)

SMALLBONES. My eyes! if that ain't a rummy caper!

JONES. Smallbones, I really must discharge you if you continue to use such vulgar language.

SMALLBONES. Wery sorry, sir, (*Aside*) I intend to discharge myself to-night, old chap, and I rather calculate that you'll be looking out for another Buttons to-morrow!

(JONES *fans* IRVING *with a pocket-handkerchief, and sprinkles water on his face, but he does not revive.*)

JONES. Dear, dear, I hope he'll come to himself!

SMALLBONES. You don't expect he's a-coming to anybody else, do yer? 'cos, if so, I'll go downstairs; I ain't accustomed to transmigrations.

JONES. No, no, stay here, stupid! Dear, dear, this is very extraordinary! I never had any one so long in coming to before. Go and ask your mistress for some smelling-salts. Stay,—no, I'll fetch them myself.

[*Exit* C.

SMALLBONES (*stands with his hands in his pockets, and contemplates* IRVING.

Well, master *have* been and gone and done it now, I calkerlate. Shall I fetch the perlice? P'raps I'd better not; the perlice is allays so wery sorry to part with me? when they meets me. Wot's the adds to me? only, as I couldn't rekincile it to my conscience to have a governor what has chloroformed a unsuspectin' patient, why, I'll leave the sitiwation this wery evening, as I said afore. In fact, I wouldn't stop another night in the house—no, not for the wages of Creases!

Re-enter JONES.

JONES. Dear! dear! hasn't he recovered yet? and I can't find the salts. I'm afraid this is serious. Good heavens! what am

SMALLBONES. You're wery kind, sir (*they drink*).

JONES. And I say, Smallbones, there's my diamond scarf-pin, I never wear it, except on Sundays. You're very welcome, if you think you'ld like it, Smallbones!

SMALLBONES (*endeavouring to lift the supposed corpse.*) You're wery kind, sir. P'raps you wouldn't mind catching hold o' one end o' the remains, sir. The genelman's rather heavy!

JONES. Me? Oh, I couldn't for the world! A little more brandy, Smallbones. (*They drink again.*) Try and lift it yourself, Smallbones, and it shall be considered in your wages. There's my new silk umbrella you're quite welcome to, and my opera-glass; but perhaps you don't go to the opera much, Smallbones?

SMALLBONES. Thankye, sir, I'm very fond o' music, when it's good. Here's luck, many 'appy returns o'-the day, sir! (*Drinks, and proceeds to drag* IRVING *through door, L.*)

JONES. *Happy* returns! I shall ever be happy again. Oh dear! oh dear!

SMALLBONES (*from next room.*) Don't go a-groaning that way, now, cose you make a fellow nervous. There, I've shoved him under the sofa! (*Enters again*).

JONES. Thank you, Smallbones; you don't know how much I am obliged to you. If you'll come upstairs, I've got a few things I shan't wear again, if they'd be any use to you, Smallbones. Give me your arm; I feel very bad. Perhaps you'd better bring the brandy, we might want it! Oh dear! oh dear!

(*Exeunt* R., *unsteadily*, SMALLBONES *carrying the bottle.*)

Enter MRS. JONES, C., *with open letter in her hand.*

MRS. J. Dear! dear! wherever can Jones be? I must show him this letter. Where can he have got to? That stupid man said a patient wanted him, and I haven't seen him since. I haven't heard the gentleman go away, but he doesn't seem to be here. It's very extraordinary! (*Goes to door,* R. H., *and calls out*) Odonto! Odonto!

Enter BELINDA C.

BELINDA. What is it, mamma dear? Has the gentleman gone who was with papa? (*Aside*) I wonder if it was my Frank!

MRS. J. I can't find your papa, my dear, anywhere, nor the gentleman either I've been looking for Smallbones to tell him to find your father, but he has disappeared too, and it's all but bedtime. I'm really getting quite nervous! so late, too! (*Goes to door and calls*) Odonto!—Mr. J.!

BELINDA. Shall I run up to his room, and see if he is there, mamma? (*Aside*) I really begin to feel fidgetty about Frank. He wrote me such a dear little note, saying that he had a plan, by which he intended to get into the house to-night, and that I was to be ready with my bonnet; and, above all, not to be surprised at *any thing*. I'm getting quite frightened.

MRS. J. Can your papa have gone out? No there's his hat in the hall. He must be about the house somewhere.

BELINDA. It's very peculiar, mamma. I hope there's nothing wrong. *(Aside)* Frank couldn't have had a quarrel with pa, and killed him? *(Aloud)* Oh, ma, I'm *so* frightened

MRS. J. *Don't be silly, child!* but I *should* like *to know* where your father is (*Calls*, O' nto! Odonto!

JONES (*outside*). C-c-Coming my dear, d'rectly!

MRS. J. Oh! there's your papa, but whatever is the matter with his voice?

> (*Enter* JONES, R., *with* SMALLBONES, *both decidedly tipsy.* SMALLBONES *dressed up in* JONES' *clothes, which are much too small for him, and carrying the empty bottle.*)

JONES. Aw'r-r-right, my dear! I've—hic—only been giving a few things to—hic—Smallbones, to make him look—hic—' shpectable Shundays.

MRS J. Jones, Jones, what *have* you been doing? Why, you're positively intoxicated! (*Notices* SMALLBONES.) And, I declare, that

rascally man has got on your best dress-coat, and your Sunday waist coat! Oh! that I should live to see this day. And you have given them to him? Oh, Jones, Jones!

BELINDA. Ma, dear! they've been drinking the brandy. Looks,! Smallbones has the bottle in his hand.

MRS. J. So it is! Oh you two disgusting sots! That decanter was half full his morning and non not a drop remains.

JONES (*with a start of horror*). Ugh! *Remains!*

MRS J. Don't repeat my words, Mr. Jones! Smallbones, take of those things, *instantly*—do you hear?—or I will call a policeman! Take them off, sir, I command you!

SMALLBONES (*aside.*) We don't want no perlicemen here. (*Aloud*) Well'm the guvenor guv'em to me hisself, he did. "Smallbones", sez he (them was his very words), "Smallbones," sez he, "them trousers is too tight for me," he says, "which you're wery welcome to'em, as you're about my figger, Smallbones," he sez. But in course ma'am, you knows best (*strips off the coat and waistcoat, and flings them at* MRS. J.'s *feet*). There's yer old swallertail, ma'am, and there's yer four-and-ninepenny west, ma'am. P'raps you'd like me to take the trousers off too, mem. On'y say the word.

MRS. J. Get out of my sight, sir, instantly! get out of my sight! Oh! Mr. Jones! Mr. Jones! before I'd have been this day, I'd rather have had you lie a corpse at my feet!

JONES. C-c-corpse! don't talk about a c-corpse. It sounds so horrible, Araminta.

BELINDA. What became of the gentleman who was here this evening, papa? Did you cure his toothache?

JONES. Oh, yes. I c-c-cured his toothache—didn't I, Smallbones? (*Aside to* SMALLBONES.) She wants to know what became of him. You won't betray me will you, Smallbones?

MRS. J. Jones, don't stand there chattering with your accomplice, but go to *bed*, sir, instantly! Belinda, my dear, support your mis-

guided father Oh, Mr Jones, is *this* the fruit of all the care I've taken of you all these years—and you a deacon of the chapel, too! You ought to be *ashamed*, sir! (*To* SMALLBONES) Smallbones, bring the candle. You leave this house to-morrow morning, sir, mind that!

SMALLBONES (*aside*). You don't catch me in this here establishment to-morrow morning—not if I knows it, leastways, not if, Jimmy Twist and Bob Guffin keeps their little appointment to-night (*Aloud*) We parts friends I hope, ma'am I never bears no malice, myself. Arter you, ma'am !

(*Exeunt*, R. JONES, *supported by* MRS. J. *and* BELINDA; SMALLBONES *pushing him behind and carrying the candle*)

Re-enter IRVING L., *cautiously*.

IRVING. Well, the coast's clear at last, and deuced glad I am to be able to stretch my legs Its'uncommon stiff work being a corpse, I find Oh dear, oh dear, what hard work it has been to keep from laughing, and to maintain a *grave* expression, as became a respectable corpse! And how the two beggars took it all in! I'm quite surprised I was successful I was precious glad Jones couldn't find those smelling-salt; I'am sadly afraid I couldn't have stood that. By the way, I owe that pampered menial a grudge, for the clumsy way in which he trundled my poor carcase about; and then to stick me *under* the sofa, the villains! They might have put me *on* it, at any rate. Oh Jones! Jones! you deserve to suffer for your unnatural conduct to your unoffending son-in-law. However, I think papa-in-law has got the worst so it this time, after all; how Mrs J. did pitch into him? I could hear, though I couldn't see. My word, Jones is having pepper now, I'll bet a sovereign. And then the prize of success, my lovely Belinda I hope she got my note all right. What a sell if she didn't! However, I don't leave this house without her, that's poz, even if I have to seek her in the sanctuary of maiden innocence, and carry her off in her *bonnet de nuit*. Hush! I hear a footstep (*listens*). 'Tis she! Oh, my

prophetic soul! No, it isn't; it is that lumbering fool of a footman. I must get under the sofa again.

(*Exit*, L. *Enter* SMALLBONES R., *with a carpet-bag and basket and* MR. JONES' *umbrella, rather unsteadily.*)

SMALLBONES. Here we are again! as the clown says in the play; and I reckon it's about time for my affectionate pals to make their apperience. Dooced dark it is! but that's easy mended.

(*Lays down his burden, and produces a small bull's-eye lantern, which he opens for an instant, then shuts again and places it on the table; then advances to the window,* R. C., *and carefully raises the sash. He then gives a low whistle, which is answered from outside.*)

TWIST (*outside*). All right, Bill!

SMALLBONES. Come along, then. (*The two burglars climb up outside, and prepare to get in.*) Be keerful as yer come in, for the weights o' this blessed winder is broke, and it won't 'old up of itself. It's gently as does it. Hold 'ard a bit, and I'll hold it up for yer. (*They get in.*)

GUFFIN. Is the fam'ly asleep?

SMALLBONES. Sound as churches, if snorin's a sign, all on 'em. The old woman and the little 'uns quite well, Bob?

GUFFIN. Pretty bobbish, thankye, Bill.

SMALLBONES. Jimmy, you ain't a family man, you ain't; there ain't no little Twistes to inquire arter.

TWIST. Not if *I* knows it. But I say, old pal I'm afeard you've been lushing a bit; 'aven't yer, now?

SMALLBONES. Well, I won't say I 'aven't 'ad a drop, for master has been coming down precious liberal, and being my last evening, I thougt it was a pity to discourage him. My eyes, how tight he did get! Sich a game as we've been 'aving here this evening. But I'll tell yer all about it presently. You're a-wisiting of me now, yer know, and, in course, when a couple o' pals drops in, why, I ain't a-going to send 'em away without a crust of bread-and-cheese and a pickle. I can't give yer yer lush hot, 'cos missus is very parti-

[illegible]kler to see as the fires is all out, afore she tumbles in; but you ain't above doing it cold without, are yer?

GUFFIN. Not exactly; we ain't partickler—are we Jimmy [illegible]

SMALLBONES. Well, then, I'll fetch it up. We'll have just a little blow-out, and then proceed to business. Pleasure fust, business arterwards, that's my motto. [Exit, [illegible]

TWIST. I say, Bob, I'm afeard our pal has had just the least [illegible] drop too much. 'Adn't we better get to business, and be [illegible]off.

GUFFIN. That's just like you, you're always nervous, you are [illegible] When I comes to see a pal, and he treats me 'andsome, why, I [illegible] to treat him 'andsome, and drink his 'elth, if it's only in 'arf-an[illegible] Don't go a-spoiling the 'armony of the evening.

TWIST. I ain't a-going to say nothing. You're the [illegible] and the ugliest, and in course you ought to know best; only if we gets nabbed, just remember I protested.

Enter SMALLBONES, *with tray and decanter.*

SMALLBONES. Here we are! Now then, fall to. I've [illegible] got all the things packed up—spoons, candlesticks, and [illegible] the cash-box, all in this here [illegible] with [illegible] master gev me afore he went to bed. My eyes, [illegible]

(He arranges the supper on the table, and [illegible] to throw the light upon [illegible] room in which IRVING is [illegible] Then begin to eat.)

I haven't had such a game for an age. [illegible] tell yer all about it.

IRVING *(peeps in cautiously).* [illegible] saw a policeman pass the window just now, I [illegible] him. Oh you [illegible] boys!

SMALLBONES *(takes a pull at the grog).* [illegible] [illegible], here's how it was. It was just [illegible]

a-thinking of going to bed, when in comes a gent with a awful toothache, and in course he wanted it distracted. Mr. Jones, that's the guv'nor, was jist a-going to operate, when the gent stopped him and sez he wanted somethin' else—law reform, I thought he said. Sez I to myself, "That's what a good many people have been kicking up a row about, but they don't seem to get it," I sez. However, it warn't that, after all, but some smelling stuff that master kep in a bottle; and he took some out and put it on a handkercher, and made me 'old it for the gent to sniff, and when he sniffed, he fainted right clean dead away. Master he laid hold, and took the grinder out, as clean as anythink; but arterwards, when he expected the gent to revive, why he didn't. Lor', wasn't master in a dooce of a funk! We shoved the corpse in that 'ere room, under the sofy, and the guv'nor kep a-mugging of hisself with the brandy, till he went to bed as drunk as anythink; and he guv me that ere umbrella, and pretty near heverythink he'd got, not to split on him.

GUFFIN. My eyes, that was a game! But ye don't mean to say as the corpus is in that room now?

SMALLBONES. I do, though—quite comfortable under the sofy.

IRVING *(peeping in. Aside)* That's all *you* know about it!

GUFFIN. Was he a swell cove, Billy, my boy?

SMALLBONES. Rather! White hat, thunder-and-lightning neck-tie, stunning ticker——

GUFFIN. Let's have a look at that ticker, Bill.

SMALLBONES. Who, me? I haven't got it. It's in the waist-coat-pocket of the remains this wery minute.

GUFFIN *(reprovingly)*. Oh! Bill, you've got a deal to learn of your perfession. You don't mean to say as you was a-goin' to leave these premises *without* that little harticle?

SMALLBONES. I'm wery sorry, Bob. I didn't think of it, upon my honour as a genelman! I ain't such a old 'and as you, Bob, yer know.

GUFFIN. Well, there ain't no harm done, as it happens; but

In course we must have that 'ere ticker afore we leaves this house.

IRVING *(aside)* I don't think you will, I want it myself.

SMALLBONES. You shall 'ave it Bob, as soon as yer like. Suppose we go and take it at once?

TWIST. Let's make haste and get it hover, then; I don't like interfering with corpseses.

IRVING (*aside*). "Come one, come all, &c."

(*They get up and advance unsteadily*, SMALLBONES *carrying the lantern, to the door where* IRVING *is. He advances a few steps into the room, and stands still, assuming a threatening expression, and holding up his right arm. They do not perceive him until they are close to him, when the light of the lantern falls full on him, and they fall back in horror.*)

SMALLBONES. Oh lor', it's the *remains*! It's the gent as was chloroformed—it's a g-g-ghost!

TWIST (*gets behind* SMALLBONES, *and falls on his knees*) Oh lor', oh lor', I know'd what 'ud happen, a-interfering with corpseses. 'Twarn't me, sir. S'elp me, it wasn't, Let me off this once, Mr. Ghost, and I won't do it no more. I won't prig no more, and I won't drink no more grog, only let us off this once!

(GUFFIN *stands with his mouth open, leaning against the table, and staggering with drunken terror*)

IRVING (*slowly lets fall his arm, and points to the window*). Begone! (*in a sepulchral tone*).

(*They rush to the window.* SMALLBONES *and* TWIST *get clear out, but as* GUFFIN *attempts to follow them, the sash falls on him, and he is left struggling, half in and half out of the room, the lower part of his body inside* IRVING, *resuming his natural air, advances to the window and bestows a sound kick on him*)

Pray don't let me detain you.

(*He raises the sash, and* GUFFIN *falls through, head first.*

IRVING *looks out.*)

Have you got them, policeman?

POLICEMAN *(outside)*. All right, sir. We've collared 'em.

IRVING (*closes window, and advances into the middle of the room*). Well, my respectable papa-in-law owes me one little obligation, at any rate. Considering it's the first time I ever was a ghost, I think I did it pretty well. By Jove, how frightened the rascals were! I didn,t anticipate the little additional adventure; but I'm glad I've saved the family spoons,any how (*takes one out of the bag*). They may figure on Mrs. Frank Irving's table one of these days. Didn't the rascals walk into the brandy! I shouldn't mind a nip myself, by the way, for I'm beginning to feel chilly; and as I've got the credit of being a ghost, why, a little *spirit* won't be out of character. I wish the villains had left a clean glass. Smallbags might have put out another while he was about it. If ever Jones asks me to dinner, I hope he won't produce those contaminated tumblers. Nevermind, Thingumbob's the mother of What-you-may-call-it, so here goes for a spoon. (*Fills and drinks from the table spoon two or three times*). Not bad brandy that. It's cold work being a corpse, I find. I wish Belinda would come; I shall have to go upstairs and fetch her, I'm afraid, after all. Hush! somebody's coming (*listens*). That's Belinda, for sixpence. How cautiously she comes? Here she is, bless her heart! I'll surprise her!

(*Door opens,* R. *Enter* JONES, *in dressing-gown, nightcap, and slippers, with a bedroom candle in his hand.* IRVING *springs from behind the door, and catches him in his arms, then springs back discomfited.*)

(*Aside*) Jones, by the powers! What a sell! I must dissemble again (*draws himself up, and resumes his ghostly attitude*).

JONES. It's his spectre! Oh, mercy, mercy!

(IRVING *advances a step, with his hand uplifted.* JONES *places the candlestick on the table, and catches up the umbrella and places it as a shield between himself and*

IRVING, *crying*, "Mercy, mercy!" *He retreats backwards round the room, shielded by the open umbrella,* IRVING *following him, with his right arm pointing at him, and his left forefinger on the spot whence the tooth was extracted.*)

JONES. You *would* have chloroform; you know you would! Don't look at me like that, please don't! Oh dear! oh dear! and I never believed in ghosts. Oh dear! Is there anything I can do for you? I didn't mean to do it; you know I didn't. I'm sure my hair's turning grey; I can feel it going!

(*They get round the room again as far as the door,* R. H. *when* JONES *falls backwards over the carpet-bag.*)

Oh lor'! oh lor'! it's all over with me now! I'm a dead man? Murder! Murder!

Enter. BELINDA, R., *in bonnet and shawl, hastily, and, without perceiving* JONES, *flings her arms round* IRVING'S *neck.*

BELINDA. My darling Frank!

JONES (*sitting on the floor, with the carpet-bag between his legs*). Who whisht! off! Don't touch him, Belinda! He's a spectre!

BELINDA. He isn't, or he wouldn't squeeze so hard!

IRVING (*melodramatically*). I am thy father's victim!

BELINDA. Papa here! and on the floor in his nightcap! (*disengages herself from* IRVING). Why, Frank, dear, what *is* this?

JONES. Don't touch him, I tell you he's a ghost!

IRVING. Excuse my contradicting your papa, my dear, but, I assure you, I'm nothing of the sort!

JONES Hey, what! I Then I say, young man, why the deuce did you say you were, eh?

IRVING. Excuse me, Mr. Jones, but I'm not aware that I said anything of the kind. The fact is, you must have given me rather a

powerful dose of chloroform, for I did not recover my senses until just now, when I found myself under the sofa in that room. (*Aside*) I wonder if he'll swallow that! (*Aloud*) *Why* you put me under the sofa perhaps you will explain presently. There are reasons for everything, and I daresay you had your reasons for putting me under the sofa; but it wasn't hospitable, I must say. Well, while under the sofa, I became aware that a burglary was about to be committed in this house by the aid of your man-servant. From a friendly feeling to—ahem!—the family, I wished to prevent it. And the result of my measures is, that you property lies there, as it was packed by the thieves for removal (you are sitting on it at this moment, indeed), and they themselves are now in the hands of the police.

JONES. You'll excuse me, young man, but I must say you've chosen a d——d queer way of doing it. If you're not dead, why the devil did you frighten me in that unchristian way? And what makes you and my daughter so precious thick, I should like to know?

Enter MRS. JONES, *half dressed*, R.

MRS. J. Oh, Mr. Jones! Mr. Jones! *this* is your treatment of your suffering wife, is it? Belinda, my dear, I leave this house to-morrow. I'll not sleep another night under the same roof with such a monster! Oh, you wretch! not content with making a beast of yourself once in the day, you must actually leave your bed to come and continue your drunken orgies! (*points to supper-table*). Belinda, my child, I was awaked just now by a dreadful noise. Naturally alarmed, I put out my hands felt for Jones—for your unworthy father, my dear; but the monster had left me, and I grasped instead his dirty boots—his nasty Wellingtons—which the creature in his drunken frenzy, had actually flung into the bed! Oh! was ever a poor wife so served? Oh dear! oh dear! (*put her face into her handkerchief and sobs*).

JONES. But, my dear——

MRS. J. Don't answer me, Mr. Jones! Oh, you unfeeling ruffian!

You heartless monster! Is this your *treatment if* the woman you promised to love and cherish? Eh, tell me that?

JONES. Well, my dear——

MRS. J. Don't answer me, I say! Oh, you cruel, *cruel*, HEARTLESS, UNFEELING man!

(*She rushes at him as he sits on the ground, and shakes him vigorously at each epithet, and finally snatches the nightcap form his head and flings it furiously at him, then sinks exhausted on the sofa.* BELINDA *goes to her and fans her.*)

IRVING. Permit me (*picks up the nightcap and replaces it on* JONES' *head*). If you will allow me, madam, I think I can explain this little domestic difficulty. *There* has been an attempt at burglary here, and Mr. Jones, no doubt being awakened by the noise, and unwilling to disturb you, came down to see what it was—prepared to do battle like a hero in *your service*. *I* had already disposed of the housebreakers; but I fear I startled Mr. *Jones*, and he stumbled over the carpet-bag, where you now see him The fact is, I thought for the moment you were another burglar, Mr. Jones.

MRS. J. It's all very fine, and who are you, young man, pray?—a policeman?

IRVING. Well, madam, not *precisely*. *A sort* of special constable, for this night only. Here is my card (*produces it*). I am *clerk to the Patent* Safety Strike-only-on-the-Box Insurance Company with a salary if £300 a year, and hopes of a yearly *addition*. (*Aside*) Not exactly to my salary, but no matter! (*Aloud*) My acquaintance with *Mr.* Jones, madam, commenced this evening, wen I became his patient for the first time, and he put me under the sofa!

JONES Well, it's a relief to find you're not a ghost after all. Out you do't mean to tell me, Mr. What's-your-name, that you remained insensible from the effects of that chloroform until just now?

IRVING. Fact, I assure you!

JONES. Well, all I can say is, it's the most ext

ever heard of. I'll write to the *Lancet* and the *Dental Journal* to-morrow (*stands up*).

MRS. J. (*examining card*). Irving? Irving? Frank Irving? Dear me, aren't you the young man——?

IRVING. Yes, Mrs. Jones, I *am* the young man, as you observe. I had the honour making of your daughter's acquaintance at Ramsgate last year, and have since in vain sought an interview with yourselves. Allow me now in person to pruss on you my suit. I am proud to have had the opportunity of rendering you some slight service; and now, Mr. Jones, in return for sacrificing my tooth (not to mention being put under the sofa), preserving your candlesticks and cash-box, relieving from the yourself unpleasant apprehension of having made me a ghost, and restoring your domestic peace, I ask but one return—your blessing, and—Belinda!

JONES. Sir, we are flattered by your proposal, and under other circumstances we might have possibly entertained it; but there is an insuperable obstacle. The hand of our daughter is already promised to the son of an old friend. I need not remark that the word of a Jones is sacred; and therefore——

MRS. JONES. Be quiet Jones, and let *me* speak. You don't know anything about it. The obstacle you speak of is removed. A letter came from your friend Soper this evening, which I was about to show you, when I found you so dreadfully intox—excited. Mr. Soper sorry to tell us that the projected match cannot take place, as his son Peter yesterday morning ran away with the cook!

IRVING. Bravo, young Soapsuds! About the very finest thing he could have done. You'll excuse my emotion; but the idea of that lovely girl (BELINDA *hides her face*) being thrown away on a Soapsuds!

JONES Soper, sir, *Soap!*

IRVING. Soper, then; what's the odds as long as you're happy? You see, Mr Jones, Heaven smiles (I might almost say chuckles) on our union. Belinda dear, join your supplications to mine. Beloved parents—your blessing!

JONES Well, as young Soper is now, of course, out of the question, I don't know, subject to your better judgment, my dear, that I have any *great* objection.

BELINDA. There's a dear pa! (*kisses him*).

JONES. What do you say, my dear?

MRS. JONES. Me? oh, *I* don't object! I never did like that Peter Soper—the nasty, low-minded little hypocrite—with his *cooks*, indeed? I'd *cook* him! But we mustn't stand talking here at this time of night; I shall catch my death of cold Jones, I insist that you come away to bed at once (*takes up candle*).

JONES. Coming, my dear, coming directly. Well, Mr. Irving, I'm uncommonly glad to find you're not a ghost What a fright you did give me, to be sure! However, we'll talk it over to-morrow, if you'll shake down on the sofa till breakfast time.

IRVING. Not *under* it this time. Thank you?

JONES. I want to talk to you very seriously about one or two of your back teeth. Perhaps we shall have something to say about some other little matters of interest And I only hope our little family arrangement may give as much satisfaction to all our friends as it has done to ourselves

BELINDA, IRVING MR JONES, MRS JONES 'CURTAIN

Exploding Salt.

If a small quantity of powdered charcoal and hy-peroxymuriate of potash be rubbed together in a mortar, an explosion will be produced, and the charcoal inflamed Three parts of this salt, and one of sulphur, rubbed together in a mortar, produce a violent detonation If struck with a hammer, on an anvil, there is an explosion like the report of a pistol.

When concentrated sulphuric acid is poured upon this salt, there is a considerable explosion, it is thrown about to a great distance, sometimes with a red flame: and there is exhaled a brown vapour, accompanied with a strong odour.

The Cook who doesn't like Peas.

The fun of this game depends on a fair proportion of the players not being acquainted with it, in which case they will be sure to lose small fortunes in forfeits before finding out the "catch."

The leader begins, addressing the first player, "I have a cook who doesn't like peas (*p's*); what will you give her for her dinner?" The person addressed, if acquainted with the secret, avoids the letter *p.* in his answer, and, for example, says, "I will give her some artichokes." The question is then asked of the second person, who, if unacquainted with the trick, is likely enough to offer some delicacy which contains the letter *p*; *e.g.*, potatoes, asparagus, pork, apple-pie, pickled cabbage, prawns, &c., &c. When this occurs, the offender is called upon to pay a forfeit, but the precise nature of his offence is not explained to him. He is simply told in answer to his expostulations, that "the cook doesn't like *p's*." When a sufficient number of forfeits has been extracted, the secret is revealed, and those who have not already guessed it are aggravated by being reminded that they were told over and over again that the cook did not like *p's*, and that if they would persist in giving them to her, they must, of course, take the consequences.

The Farmyard.

This is generally made use of as a means of victimizing some rather assuming young gentleman. The leader states that he is about to give each person privately the name of some animal in the farmyard, and that when he gives the signal, by dropping his handkerchief, each is to imitate the noise and action of that particular animal—the loudest the better. He then goes round the circle, and whispers to each, professedly, the animal he or she is to imitate. In reality, however, he says to each, "Remain perfectly silent," save when he reaches the victim, to whom he whispers, "The donkey." He then asks, "Are you ready? Now then, all together!" and drops his handkerchief. There is a solemn hush, amid which the voice of

the victim is uplifted with a stentorian "tray." As a rule, the subject of the experiment is not likely to make himself especially conspicuous for the remainder of the evening.

The Demon Lump of Sugar and the Magic Hats.

The performer announces that he will repeat the same experiment in a still more starting form. He commences by borrowing two hats, which he places, crown upwards, upon the table, drawing particular attention to the fact that there is nothing whatever under either of them. He next demands the loan of the family sugar-basin and requests some one to select from it a lump of sugar (preferably one of an unusual and easily distinguished shape), at the same time informing them that, by means of a secret process, only known to himself, he will undertake to swallow such lump of sugar before their eyes, and yet, after a few minutes' interval, bring it under either of the two hats they may choose. The company, having been prepared by the last trick to expect some ingenious piece of sleight-of-hand, are all on the *qui vive* to prevent any substitution of another lump of sugar, or any pretence of swallowing without actually doing so. However, the performer does unmistakably take the identical lump of sugar chosen and crush it to pieces with his teeth. He then asks, with unabated confidence, under which of the two hats he shall bring it, and, the choice having been made, places the chosen hat on his own head, and in that way fulfils his undertaking

The Mysterious Production.

This is another feat of the genus "sell," and to produce due effect should only be introduced after the performer has, by virtue of a little genuine magic, prepared the company to expect from him something a little out of the common. He begins by informing the spectators that he is about to show them a great mystery, a production of nature on which on human being has ever yet set eye, and which, when they have once seen, no human being will ever set eyes

on again. When the general interest is sufficiently awakened, he takes a nut from the dish and, having gravely cracked it, exhibits the kernel, and says, "Here is an object which you will all admit no human being has ever seen, and which" (here he puts it into his mouth and gravely swallows it) "I am quite sure nobody will ever see again."

To Convert a Bottle into a Mitrailleuse.

Take a very thick black glass bottle, without a flaw, and into it put three and a half ounces of iron filings, two ounces and a quarter of oil of vitriol, and half a pint of water. Cork the bottle until it feels warm, when remove the stopper and apply a bit of lighted paper, and a detonation will be heard. You can repeat this feat some twenty times consecutively.

A Liquor Shinning in the Dark.

Cut up a piece of phosphorus the size of a pea into many bits. Put it into a small earthen pipkin, with half a glassful of very clear water, and boil it at a slow fire. Have ready a long clear white glass phial, with a glass stopper fitting it tightly, and put it into boiling water: take it out, empty it, and instantly pour into it the phosphorus water, covering the stopper with gum mastic, to make it air-tight. Throw away the remaining phorsphorus water at once, as it is poisonous. This water in the phial will be luminous for many months in a dark place. Be careful not to shake the bottle; but if, in warm, dry weather you shake it, every brilliant flashes will dart about inside the glass.

To Lift a Bottle, Full or Empty, with a Straw.

Take a long sound straw, and bend it, between the knots, so as to form an acute angle. Thrust it, angle down, into a bottle, so that the longer end will be outside, and the other catch the inside of the upper swell entering the neck. Thef orce being distributed

Burning of the North Pole.

To make inflammable ice, melt large lumps of spermaceti in distilled rock-oil in a vessel over a slow fire. Put the liquor in a cool place, and it will set like ice. If it is very warm weather when you perform the feat, put the vessel in cold water, and when the compound begins to thaw out pour over it strong spirits of nitre, when all will burst into flame and he consumed quickly.

The Floating Beacon.

Fasten to the end of a half burnt candle leaden counter of its own diameter, and put it gently into water. It will swim erect, and, if lighted, will burn to the very end without sinking.

A Lamp to Burn although Trundled on the Floor.

By mounting three rings around a lamp, each on two pivots set in the next outer one, the lamp, like a swinging light for shipboard, will always keep erect through all attempts to upset it by moving its outer circles.

Mock Lightning.

To play a practical joke on some one, prepare a small, dark room, without many windows to let in light or air, by burning spirits of wine and comphor in a bowl, until they have all been consumed. Whoever enters the room with a light will be saluted by a flash of lightning, without either he or the room being injured in the faintest degree.

A Delicate Distribution.

Twelve bouquets have been brought in to the company, but there are thirteen ladies in it. The host really is not sorry to vex one of

them, but he dare not reveal his ill-will, and he says that Chance shall make the decision. Consequently, he places the ladies in a ring, letting them take what positions they themselves prefer. He reckons from one to nine, and makes the ninth lady leave the circle giving her a bouquet; and it is found that the eleventh lady, including the one by whom the host began, remains the last, and has no share in the distribution. If there had been twelve ladies for eleven bouquets, the host would have had to commence by the one whom he wished to exclude.

To Change One Coin put in a Plate into Two, One of them Larger than the Other.

Fill a glass goblet with clear water, and into it put a shilling or a florin. Put one hand on the glass and the other under a plate set upon it, and quickly turn the two upside down, so that the water cannot run out, on account of the air having no time to enter. The result will be, that whoever looks at the coin, which will be on the plate, will see it appear twice its natural size, while a little higher than itself will be seen its image, but about the real coin's size, which will make persons, ignorant of the laws of refraction, imagine there was a shilling and a half-crown put in the glass. On lifting up the glass, that illusion will cease.

Exploding Pastilles.

Make out of the composition used for the perfumed lozenges burnt to scent a room, balls large enough to hold a pea, and, while damp, fill these cavities with gunpowder and cover them over. Turn them upside down, so that the damp will not neutralize the powder in their drying. When they are put in a chafing-dish their explosion will cause an amusing alram.

To Make a Cross in the Hand with one Stroke of the Pen.

With a quill and ink, make a line across the crease which runs

from the purse, and reckon 18, 19, 20, 21, 22, and 23, which you pretend to put into your left hand, but in fact, retain in the other, while affecting to make them pass to join the 17. You open your left hand, showing that the half-dozen had gone, and bid the person reckon his counters, and the amount will be the 23 he wished for He puts them down; and, in your picking them up, you add the 6 you concealed, and put them all away in the purse Or, you return them all to the person, and ask him how many he would like to have between 23 and 29. Suppose he replies 26, you tell him to give you 3, then from 23 to 26, you reckon 3, which you pretend to throw into his hand as before; on opening it, he finds truly 26 You take them, and adding the three left in your hand put them all away together If, instead of the 23 counters supposed, the person had chosen to wish for 19, the key is, for you to ask for as many counters as are between the number the person asks for and 23; that sum will bet he number wished for.

How many Counters have I in my Hands?

An equal number of counters being in each of a person's two hands, you can tell how many he has altogether by this means. He is to put from the right into the left hand a certain number of counters, less than he has in either hand Then from the left hand, to which he had added these, let him take just as many as were remaining in the right hand. There will now be in the left twice as many as the number he was ordered to carry back to the right. Ask by how many the counters in the left hand outnumber those in the other, and you will then know how many he holds in his right hand. Lastly, add the contents of both hands to learn the entire amount.

Example.—Supposing twelve counters originally taken in each hand, and seven put from the right into the left, five are to be returned, because that number was left in the right hand. You are sure that the left hand then holds fourteen counters, the double of the seven you ordered back. You then ask by how many the number in the left hand is above that in the other, and being answered four,

you substract four from fourteen. The remainder, ten, you add to fourteen, and the result, twenty-four, was the total of the counters taken at first.

A Practical Joke on a Linendraper.

Call for the third and a sixth of a yard of ribbon or tape, and he will measure off each part by itself, when he might just as well have cut off half a yard at once, as the yard, having three-thirds in it, one-third and a sixth is three-sixth, or one-half of three-thirds.

The Tree of Mars, or Metallic Vegetation.

Dissolve in spirits of nitre, rather strong, as much iron filings as it will take up, add tartaric acid in solution, poured on gradually. There will be a strong effervescence, at the end of which the iron, instead of sinking to the bottom of the vessel, will rise along the sides, coat its enterior, and shoot off a number of branches piled on top of one another, often falling over the edge of the vessel, and covering its exterior with all the appearance of a plant.

Note.—The best vessel for the experiment is a large glass with a stem, set in a saucer.

Tree of Diana.

In five ounces of aqua-fartis, dissolve four ounces of silver filings or scales, and a quarter of an ounce of mercury. Put it in a half pint of common water, and stir it well to mix it all. Keep well stoppered up. If, after putting a little amalgam of silver and mercury, the size of half a pea at the bottom of a small phial, you pour upon it about an ounce and a quarter of this liquor, there will be seen to shoot from the little ball of amalgam, tiny branches which will sensibly enlarge, to form a miniature tree or shrub in silver.

To Change the Colour of a Bird's Plumage, or Petals of a Flower.

Have glass jars with narrow rims near their mouths, large enough to contain the bird you mean to put in suspended from the opening by the neck. You will require, also, large corks or bungs, which will fit the mouth of the vase. To perform this experiment on a bird, begin by making a hole in the cork, large enough to hold the neck of the bird, without strangling it. Then divide the cork into two parts, so that each piece has in it one-half the circular hole you will thus be able easily to place it round the bird's neck without running the risk of injuring the creature. Do this, and then put in the bottom of the vessel one ounce of quick-lime, and on it a quarter-ounce of sal ammoniac. When you see the effervescence begin to take place, put in the bird, letting the cork which is round its neck fit tightly in the neck of the vase. The plumge exposed to the vapour of the effervescence will become impregnated with different colour, produced by the combination. Withdraw the cork, and the bird, as soon as you perceive, through the glass, that its feathers are turning different colours, which will be in the course of two or three minutes. You will run the risk of suffocating the bird if you expose it to the fumes for a longer period.

In changing the [illegible]

[illegible]

will suffice.

Speculation.

The full pack of fifty-two cards is used. Each player contributes an agreed stake towards the pool, the dealer playing double. Three cards are dealt to each player, the cards next following being turned up as trump, and belonging to the dealer.

The pool is won by the player who at the close of the round

holds the highest, card of the trump suit, the ace being regarded as highest, and the two as lowest.

No player is allowed to look at his cards (under penalty of losing all chance for that particular pool), but each player turns up one card in regular succession all round the table until a card of the trump suit, and exceeding the original turn-up in value, is exposed. Such card, if a fairly high one, at once assumes a market value, and becomes an object of "speculation." The holder may either decide to retain it for himself, or may dispose of it to some other player. The turning-up of the cards is then resumed (always beginning on the left of the holder of the winning card for the time being), and continues until a still higher card of the trump suit it exposed, when such latter card becomes the favourite, its predecessor being now valueless. The higher the card, and the smaller the number that still remain to be turned, the better its chance of proving a winner, and the higher the price that may fairly be asked for it. Thus, suppose three dozen counters in the pool, a card, say a knave, for which at a given stage of the game only half a dozen counters were offered, will towards the close of the hand be worth three or four times that amount.

The holder (whether original or by purchase) of the highest card for the time being is not required to turn up any more until such card is beaten. On the same principle, as the turn-up card is considered to belong to the dealer, he is not required to expose any of his cards until the turn-up has been beaten; and if such turn-up proves ultimately to be the best card of the trump suit, he, or a purchaser from him (if any), takes the pool.

The "speculation," from which the game takes its name, is by no means restricted to the purchase of an exposed card. The dealer may, if he pleases, sell his turn-up even before beginning to deal, and it is a frequent occurrence for a player to buy a single card, or a whole hand, unseen on the chance of their proving winners.

If the ace of trumps is turned up the hand is of course at an end, the possessor of such card being the winner. Where an ace is turned up by the dealer by way of trump, the dealer takes the pool,

and a fresh pool is made without again dealing, the elder hand (to whom the deal would in the ordinary course pass) simply turning up the card next following by way of fresh trump.

The game is subject to some slight variations. Some players deal an extra hand, for the pool, in the middle of the table, and if, at the close of the round, such hand is found to contain a better card than the supposed winner, the pool remains untaken, so that the next following pool is doubled in value. In some circles, any player (whether original holder or purchaser) who turns up a knave or a five contributes one counter to the pool. This last is a decided addition It is said that we all find a subtle pleasure in the misfortunes of even our best friends, and there is something inexpressibly touching in the fact of a person who has just paid a liberal price for an unseen card being called upon to pay a trifle more by way of fine on his bargain

To "Force" a Card.

By this phrase is signified to the compelling a person to draw such card as you desire, though he is apparently allowed absolute freedom of choice. Your first step is to get sight of the bottom card, or, if you want to force a predetermined card, to get that card to the bottom Having done this, take the pack in the left hand, and insert the little finger halfway down, in readiness for the pass. Make the pass as above described, but, before uniting the two halves of the pack in their new position again slip the little finger of the left hand between them. (The two halves will now be united at the end which is towards the spectators, but divided by the little finger at the end nearest to yourself; and the original bottom card, which is the one you desire to force, is now at the bottom of the upper heap, resting on the little finger) Using both hands, with the thumbs above and the fingers below the pack, spread out the cards fanwise from left to right, at the same time offering them to the person who is to draw, and requesting him to select a card. Keep the little finger of the left hand still on the face of the card to be chosen, or you may now use, if more convenient, the same finger of

the right hand, both being underneath the cards. As the person advances his hand to draw, move the cards onward with the thumb, so that the particular card shall reach his fingers just at the moment when he closes them in order to draw; and, if you have followed these directions properly, it is ten to one that he will draw the card you wish.

It may possibly be imagined that forcing a card is a very difficult matter, and requires an extraordinary degree of dexterity; but this is by no means the case. The principle thing against which a beginner must guard, is a tendency to offer the particular card a little *to soon*. When the cards are first presented to the drawer, the pack should be barely spread at all, and the card in question should be ten or fifteen cards off. The momentary hesitation of the drawer in making his choice will give time, by moving the cards quicker or slower, as may be necessary, to bring that card opposite his fingers at the right moment. Should the performer, however, miscalculate his time, and the cards pass the drawer's fingers before the choice is made, there is still no reason to apprehend a failure. Still keeping the little finger on the card, the performer should sharply close the cards, and making some remark as to the drawer being "difficult to please," or the like, again spread them as before, and offer them for the choice.

The Pairs Re-paired.

After performing the last trick, you may continue, "As you have not yet found me out, I will repeat the experiment, but in a slightly altered from. This time I will invite you to think of two cards each, and all present may join if they please." After giving the pack to be shuffled, you deal out twenty cards, face upwards, but placing them in couples. Invite as may of the company as please each to note any particular couple they think fit, and to remember those two cards. When they have done so, gather up the cards, picking them up here and there in any order you please, taking care, however, that none of the pairs are separated. You now deal them out again,

e upwards, in rows of five, according to the following formula: *utus dedit nomen Cocis*, which, being interpreted, signifies, "Mutus ave a name to the Coci," a people as yet undiscovered. On xamining the sentence closely, you will observe that it consists of ten letters only, m, u, t, s, d, e, i, n, o, c, each twice repeated. This gives you the clue to the arrangement of the cards, which will be as follows.—

M	U	T	U	S
1	2	3	2	4
D	E	D	I	T
5	6	5	7	3
N	O	M	E	N
8	9	1	6	8
C	O	C	I	S
10	9	10	7	4

You must imagine the four words printed as above upon your table. You must deal your first card upon the imaginary M. in Mutus, and the second on the imaginary M. in Nomen, the two next cards on the two imaginary U's, the two next on the two T's, and so on. You have now only to ask each person in which row his two cards now appear, and you will at once know which they are. Thus, if a person says his two cards are now in the second and fourth rows, you will know that they must be the two cards representing the two *p's*, that being the only letter common to those two rows. If a person indicates the first and fourth rows, you will know that h cards are those representing the two *S's*, and so on.

The Vanishing Knots.

For this trick you must use a silk handkerchief. Twistin rope-fashion, and grasping it by the middle with both hands, request one of the spectators to tie the two ends together. does so, but you tell him he has not tied them half tight enough you yourself pull them still tighter. A second and third kn made in the same way, the handkerchief being drawn tigh

yourself after each knot is made. Finally, taking the handkerchief, and covering the knots with the loose part, you hand it to some one to hold. Breathing on it, you request him to shake out the handkerchief, when all the knots are found to have disappeared.

When the performer apparently tightens the knot, he in reality only strains one end of the handkerchief, grasping it above and below the knot This pulls that end of the handkerchief out of its wisted condition and into a straight line, round which the other end of the handkerchief remains twisted; in other words, converts the knot into a slip-knot. After each successive knot he still straightens this same end of the handkerchief. This end, being thus made straight, would naturally be left longer than the other, which is twisted round and round it. This tendency the porformer counteracts by drawing it partially back through the slip-knot at each pretended tightening. When the finally covers over the knots, which the does with the left hand, he holds the straightened portion of thehandkerchief, immediately behind the knots, between the first finger and thumb of the right hand, and therewith, in the act of covering over the knots, draws this straightened portion completely out of the slip-knot.

To Pass a Ring Through a Pocket Handkerchief.

This trick is performed by the aid of a piece of wire, sharpened to a point at each end, and bent into the form of a ring. The performer, having this palmed in his right hand, borrows a wedding-ring and a handkerchief (silk for preference.) Holding the borrowed ring between the fingers of his right hand, he throws the handkerchief over it, and immediately seizes with the left hand, through the handkerchief, apparently the borrowed ring, but really the sham ring, which he adoritly substitutes. He now requests one of the spectators to take hold of the ring in like manner, taking care to make him hold it in such a way that he may not be able to feel the opening between the points, which would betray the secret. The ring being thus held, and the handkerchief hanging down around it, a second

spectator is requested, for greater security, to tie a piece of tape or string tightly round the handkerchief an inch or two below the ring. The performer then takes the handkerchief into this own hand, and, throwing the loose part of the handkerchief over his right hand, so as to conceal his mode of operation, slightly straightens the sham ring, and works one of the points through the handkerchief, so getting it out, and rubbing the handkerchief with the finger and thumb in order to obliterate the hole made by the wire in its passage. He now palms the sham ring, and produce the real one, which all along remained in his right hand, requesting the person who tied the knot to ascertain for himself that it has not been tampered with.

The Magic Likeness.

Take a slightly convex glass, such as is used to cover a portrait or hair devices in a bracelet, and another piece of the size, but of ordinary glass, very thin. Cover the concave side of the first with a composition made of lard and a *very* little melted white wax, mixed together. Fasten the two glasses very exactly, the one over the other, so that this conposition is between them; and join them by binding the edges together with a bit of pig's bladder, fastened with mouth-glue. Let it get perfectly dry, and after having cleaned the glasses well, put a photograph, a miniature, or any other picture you please, under the flat side. Afterwards, have it put into a frame, which will entirely conceal the binding of the edges.

Performance.— When you warm the picture a little, the composition you have introduced between the two glasses becoming liquid, is also rendered entirely transparent, and you perceive the subject of the picture with perfect clearness. Otherwise, it conceals the portrait, just as if there were a piece of white paper under the glass. It will appear and disappear as often as you choose, on making it warm, or letting it get cold.

To Divide a Coin without Cutting it.

Stick three pins on a board thus ⁎, on the heads of which you

When you discharge a jar, do not place the discharging-rod in a weak part of the jar, for the explosion may be strong enough to shatter the vessel. A cracked bottle cannot be charged, and one such in a battery may prevent every one of the rest from being filled.

When glass, for legs of stools, &c., is not at hand, wood, dried in a oven, may be used, the harder sorts being less electrical, generally speaking. But though these will answer for a time, damp will attack them gradually, and hence make them conductors. As much as you can, use sulphur, glass, or silk, the former being the best substance for insulating.

When you charge a jar, or, more particularly, a battery, take heed not to risk an explosion by some mischance, and never during the charging to touch the conductor of the machine, or whatever connects it with the battery, for the reason that the electric fluid may return by that means to the outside of the jars of the battery, by a line, not thought of, in which current stands the imprudent experimentalist.

Pope Joan.

The most eminent authorities upon the subject of this game are maiden aunts of mature age. Where a lady answering to this description is present in a company, she will by natural selection be deputed to "deck the board" and decide any points which may arise in course of play. The following brief instructions are only designed to supply the lack of such a leader.

The game is played with a circular "board*" revolving on a centre pedestal, and divided into eight compartments, each dedicated to a particular card or combination and having such card or combination pictorially depicted thereon. These are King, "Pope" (the nine of diamonds) Knave, Game (to be hereafter explained), Queen, Matrimony (the union in one hand of the king and queen of trumps, Ace, and Intrigue (the union in one hand of the queen and

* Procurable at any toy-shop or bazar.

knave of trumps.) The game is played with an ordinary pack of cards, from which, however, the eight of diamonds has been removed.

Before each deal, the dealer is required to pay fifteen counters for the purpose of what is called "decking the board" These are divided amoung the various pools, or compartments, as follows: viz., six to "Pope" two each to Matrimony and Intrigue, and one to each of the other divisions The board having been decked, the dealer distributes the whole of the cards (face downwards) in the usual way, but dealing one more heap than there are players, and turning up the last card for trump. The extra heap is dealt to make "stops" and the dealer alone has the privilege of looking at them. The object of the players is two fold—1, to play out all their cards before any other player can do so; and 2, to play such cards as may entitle them to a payment of counters from the board.

The elder hand (viz., the player to the left of the dealer) begins by leading any card he pleases If he has two or more in sequence, he will generally give them the preference, as he will thereby ensure getting rid of a greater number of cards. If any other player has the next card higher in sequence, he plays it, and so on in like manner until some card is played which is a stop, either by reason of its being a king, and so the last card of its suit (ace being lowest at this game), or by reason of the card next following being among the extra hand dealt as above-mentioned, as to which fact the dealer decides. * The card next preceding the turn-up card is necessarily a stop, as is also the seven of diamonds, by reason that the eight is, as before stated, removed from the pack. Any player who plays a stop is entitled to lead again. Should any player in the course of the hand play either the ace, king, queen, or knave of trumps, the nine of diamonds (Pope), or either of the combination above described as Matrimony or Intrigue, he is entitled to receive all the coun-

* The words "stop" is used in a double sense 1, to denote a card already played or belonging to the extra hand; 2, to denote a card immediately preceding one of the last class The latter is the more correct meaning.

either of the players holds none but consecutive sovereigns, when he shows his hand, and takes the large pool. If he also chances to have the Game Card, he takes the "Game" pool in addition. If any player by mistake shows his hand as consisting of consecutive sovereigns, and proves to be at fault in his English history, he forfeits three counters to the large pool W should add, however, for the encouragement of weak brethren, that there is really no excuse for a mistake in this particular, inasmuch as two or three printed lists of the Kings and Queens of England are supplied with the pack, and lie on the table, to be referred to by anybody who feels a momentary hesitation as to "who comes next."

The Ship Struck by Lightning.

In the middle of a small boat set a mast made of a glass tube, eight inches long by one-half in diameter, filled with water. Cork both ends. Run through the corks two pieces of iron wire, with the ends nearest each other half an inch apart. The lower wire must go into the water on which swims the boat, and the upper one ends in a small knob.

Performance.—Connect the outside of a battery with the lower wire, and the end of the iron chain which is connected with the inside of the battery with the end of the upper wire, when the explosion of the fluid, leaping from one wire to another, will shatter the tube, and sink the boat with a hole in the bottom.

The Luminous Bauquet.

Around a cylinder or circle of glass, six inches in diameter by five inches high, coat in tinfoil a band three inches broad, both inside and out, so that there will be an inch of clear glass above and below the band Stop one side of the cylinder with a circle of thin card-board blackened with the shape of a flower, such as a rose, lily &c., cut clean out of it; cover this aperture with fine paper, on which you

put it immediately into a mortar; a few moments afterwards you bid another person pound it with a pestle; you exhibit the wheels, face, mainspring, and drum-barrel broken and smashed; yet, in a few minutes, return the watch, safe and sound, to the propriator, who recognizes it.

After what we have shown, it will easily be surmised that the mortar must be placed near the trap in your table, and covered with a napkin, in order that the confederate may substitute another watch.

To produce a complete illusion in this case, you must take care to put in the mortar a second watch, resembling the borrowed one. And this is by no means difficult; for you can either have an understanding with the person lending watch, or you may manage to ask the loan of some one whose watch you have had an opportunity of examining shortly before, with a view of procuring a similar one.

After replacing the fragments in the mortar, cover them a second time with the napkin, and amuse the company with a riddle or conundrum, or by some other tricks, to give your confederate time to collect all the bits, and replace the perfect watch in the mortar.

The Magic Sovereign Box.

Have a box large enough only to hold a coin or two, such as are commonly called "sövereign boxes." Take a half-crown and bore a hole with a drill transversely through its diameter, from edge to edge, and force into it a well-tempered and magnetized darning-needle. Drop a little pewter on the opening made, groove it with a file, to imitate the milling, and no one will perceive that it has been in any way tampered with. But if you look at the coin with the Magic Opera-glass, previously described, the needle within it will take the direction of the magnet embedded in the piece of money.

To perform the trick, ask of one of the company a half-crown, skilfully substitute for it your prepared one, and give to another person to hold, as if this were the borrowed one. He is either to put it in the box or not, and you propose, without touching the box, and

merely by looking at it with your spy-glass, to tell whether the piece was or was not shut up in the box. If the concealed magnet makes the needle move, you know the coin is in the box.

Observation 1st. The needle in the opera-glass naturally points to the north, like that of a mariner's compass, and so it is essential, before bringing it near the box, to look at its situation, which will alter as the coin is approached. Nevertheless, if by chance the needle in the coin happened to be at that moment in the direction of the magnetic meridian, the trick would fail.

Observation 2nd. The needle in the opera-glass must be extremely sensitive, on account of the needle in the coin having no great attractive force. You could perform the trick with the coin in a snuff or tobacco box, but too deep a box might trouble you in executing the feat.

Tricks with the Magic Lantern.

The magic lantern is a dioptrical instrument, invented by Father Kircher, with the property of making figures painted on pieces of thin glass, with transparent colours, appear of large size on a white surface, as a wall or sheet. Behind the glass picture is a strong light, and before it two magnifying glasses or lenses in a telescopic slide, so that they can be adjusted in focus, and so send the rays of light from behind the glass diverging to the wall, where they will form a larger image.

If the light is form the sun, the effects are skin to those of the solar microscope; if by a candle, or lamp of any sort, a reflector is set so as to save all the rays that would not otherwise have illumined the picture-glass.

To give movements to the figures in the pictures two pieces of lass are used, one set in a frame and painted with part of the figure, hich the other, bearing the moving portion (as a leg, an arm, or achinery), is worked by a string or a rod, sliding in through a slit in ae frame; thus can a wind or water-mill be seen in action; a cobbler

sew at a boot; a comic man drink a Chesterfield take off and put on his hat; Mr. Punch flourish his staff of office, &c.

To make this optical aparatus more amusing and wondrous, prepare the figures so as to be able to give them natural movements, done by using to glass *slides*, on which different parts of the same object are painted, and moving one to and fro behind the other. Thus Jack can be made to thrust his sword at a giant; Jack, Jill, and the pail ball downhill, a grotesque head put out its tongue, a smith hammer on an anvil, a ropedancer waltz from one end of a card to the other; a trapezist perform, &c.

A *dissolving view* is managed by two lanterns of the same powers, lighted equally. The light from one must fall on the same point of the screen where the other casts its picture, so that when one slide is gradually shut off, and the other proportionately discovered, one, scene seems to fade into another. The best effects are a landscape in winter becoming a view in summer; a desert into a populous market-place; a ghost into a jolly laughing man, &c.

For *phantasmagoria*, the figures are surrounded by an opaque tint, so that the rays of light pass only through the figures themselves, and while the magic lantern views are cast upon a wall with a halo or circle of light all round them, the phantasmagorial lantern throws them on a transparent screen, such as a sheet of wetted or waxed muslin, oiled or tissue paper, stretched smoothly on a frame.

To prevent the friction of moving slides against the paintings, interpose a thick band of paper around the edges to keep the surfaces of the two glasses from contact.

To make Hydraulic Machines with Pleasant Effects.

Though the art of embellishing gardens with [illegible] works is mostly restricted to [illegible] and [illegible], [illegible] inexhaustible in the [illegible] [illegible] quently a variety of [illegible]

our pleasure in such contrivances. Those here described will cost but a trifle to apply to such water pipes as you have down, since one of these set pieces of tubing can be screwed on to any fountain-pipe. In miniature, such machines are pretty for greenhouses, hall windows, aquaria, and studies, and only require a small reservoir on a slight elevation.

To Attract a Light Body Floating on Water.

A bottle or tube, if electrified, has the property of attracting light bodies. Take a phial, five or six inches long, coat it outside up to an inch of its mouth with tinfoil (or let your hand grasping it be its cover, in default of the foil). Fill it three-quarters full with water, and stopper it with metal, through which a thin brass wire runs down, so as to reach the water, put the phail in a case or jacket, which must not touch its sides or be too closely around the stopper; electrify the case by holding the stopper to the conductor of the electrical machine.

Performance.—Having thrown upon water in a dish any light substances which will float, such a bits of cork, brown paper, &c., you bring the cork of the phial near it and attract the bodies so that they will let themselves be led to the edge of the vessel, just as a magnet attracts iron, which will appear very strange to all not aware of the phial so innocently taken out of your pocket having been electrified.

Observation.—The phial must be electrified only a little while before you make use of it, to prevent the electricity weakening by the loss of time.

To Bleach Prints and Printed Books.

Simple immersion in oxygenated muriatic acid, letting the article remain in it, a longer or shorter space of time, according to the strength of the liquor, will be sufficient to whiten an engraving: if it be to required to whiten the paper of a bound book, as it is

necessary that all the leaves should be moistened by the acid, care must be taken to open the book well, and to make the boards rest on the edge of the vessel, in such a manner that the paper alone shall be dipped in the liquid; the leaves must be separated from each other, in order that they may be equally moistened on both sides. The liquor assumes a yellow tint, and the paper becomes white in the same proportion; at the end of two or three hours, the book may be taken from the acid liquor, and plunged into pure water with the same care and precaution as recommended in regard to the acid liquor, that the water may touch both sides of each leaf. The water must be renewed every hour, to extract the acid remaining in the paper, and to dissipate the disagreeable smell.

To make Touch-paper.

Dissolve in some spirits of wine or vinegar, a little saltpetre, then take some purple or blue paper, wet it with the above liquor, and when dry it will be fit for use. When you paste this paper on any of your works, take care that the paste does not touch that part which is to burn. The method of using this paper is, by cutting it into slips, long enough to go once round the mouth of the serpent, cracker, &c. When you paste on these slips, leave a little [illegible] the mouth of the case not pasted; then prime the case with meal *powder*, and twist the paper to a point.

"Buff says Baff."

This is a trial of gravity, any player failing to keep his countenance while playing the principal part incurs a forfeit. The rest of the company of course do their best to excite his risible muscles.

One of the players leaves the room armed with the [illegible] and on re-entering thumps the floor three times. [illegible] "Whence come you?" "From your [illegible], who [illegible]" "What message did he send?" [illegible]

lines of doggrel, which must be delivered with imperturbable gravity:—

> "Buff said 'Baff,'
> And gave me this staff,
> And bade me not laugh
> Till I came to his house again."

The rest of the company meanwhile do their utmost, by absurd questions, &c., to upset the player's gravity. If he remains proof, he continues:—

> "Buff says 'Baff' to all his men,
> And I say 'Baff' to you again;
> But he neither laughs nor smiles,
> In spite of all your cunning wiles;
> But keeps his face with a very good grace,
> And passes his staff to the very next place."

In the rare case of the player retaining his gravity throughout these trying circumstances, he is sometimes considered entitled to demand a forfeit from all the rest of the company.

Spelling Games.

It is surprising what a fund of amusement may be derived from four or five alphabets, printed on card-board, and then cut up into, say, half-inch squares, with a single letter on each. A double supply of vowels will be found an advantage.

The most simple mode of using the alphabets is for one person to pick out the letters forming some word *e,g*, "nevertheless," and then hand them, well shuffled together, to another player, who endeavours to discover what word they form.

Another game, known as "Word-making," is played as follows:—The players, each of whom is supplied with paper and pencil, are divided equally into two sides, and the leader having selected a word, suppose "notwithstanding," each party sets to work to see how many different words thy can make of the same letters. (This

from the words above suggested may be made "not, with, stand, standing, gin, ton," to, wit, his, twit, tan, has, had, an, nod, tow, this, sat, that, sit, sin, tin, wing, what, who, wish, win, wan, won," and probably a host of others.) A scrutiny is then taken, all words common to both parties being struck out. The remainder are then compared, and the victory is adjudged to that party which has the greatest number.

Sometimes the division into sides is dispensed with, and each player fights, like Hal o' the Wynd, "for his own hand."

Another purpose for which the alphabets in question is used is that of forming *anagrams*, in the composition of which they are a very great assistance. We are inclined to doubt whether the results obtained in this game bear a fair proportion to the labour involved: though it is produced that is curiously appropriate. We may instance the following:—

Horatio Nelson.	Honor est a Nilo.
Telegraph.	Great help.
Florence Nightingale.	Flit on, cheering angle.
Radical Reform.	Rare mad frolic.
Astronomers	Moon starers.

A fourth Spelling Game is played by each person drawing, say twenty letters haphazard, and trying to form them into a sentence, the plam of merit being awarded to the player who at the same time produce the most coherent phrase, and also succeeds in using the greatest proportion of the letters assigned to him.

The Witch of Endor Trick.

The light of the magic lantern, as well as the colours of the objects designed on the slides, can not only appear on a sheet, but can as well be given on abiding-place on smoke.

For this purpose, make a paste-board or wooden box, four feet high, and seven or eight inches square at the base, tapering upwards, so as to end at top in a slit six inches long by half an inch wide.

At the base of the box is a door, closing tightly, through which can be put a chafing-dish. If incense is put on this, the smoke will issue in a sheet from the opening above. On this column of vapour the light of the lantern is directed, using the ordinary slides, it being extraordinary that the rising of the smoke has no effect on the shape of the figures, which seem tanigible enough to be readily grasped in one's hand. The light must be reduced to its smallest focus, to have the outlines clear.

By this means, a ghost may be made to rise up on a pedestal, set in the middle of a table, the illusion being best if the cause is not known. For this trick, shut up a small-sized lantern in a box large enough to hold a moveable mirror, inclined so as to reflect the cone of light from the magic lantern placed apposite it. The part of the box over the lantern-chimney must be pierced with holes to let out its smoke, and on this spot set an oblong chafing-dish, just large enough to hold a few live coals. The opening made in the box to let the reflection from the mirror pass out, should be hidden as far as can be from the audience. The slide is put in vertical motion by a thread, which works on two pulley-blocks, coming out at one of the corners of the box, so that it can be let down and drawn up. Let there be painted on the glass a comic demon or hobgoblin, or any other figure more to your fancy, designing it somewhat squat and flattened, because the column of smoke does not cut the cone of light from the lantern at right angles, and therefore the figure would appear lengthened out of the proportions you desire.

Performance.—After having lighted the lamp of the lantern and set the mirror properly, bring in a well-closed pedestal and set it on the table. Entreat the audience to be under no alarm. Place the chafing-dish as stated, and sprinkle some perfume-powder on the coals, instantly lifting the trap and gently let down the slide. When you notice that the smoke is ceasing to rise, lift the slide and shut the trap. All other lights must be out in the room, and the pedestal must be placed so high that the audience cannot see the opening by which issue the rays of light. Done so that the ap-

parition will be life-size, the effect will be profound. There may also be employed for this apparatus, slides depicting flowers, cards and other things, which, by various processes, you have made away with, and having burnt which, you pretend to throw the asheso r the chafing dish.

Vingt-Un

Among round games played with ordinary cards, that of *Vingt-Un* may claim a foremost place. It is simple, easily learnt, and just so much margin for the exercise of personal judgment as to redeem it from the reproach of being a more game of chance.

The game is played wish the full pack of fifty two cards. Each player is provided with a supply of counter, representing a given value, and a maximum stak is agreed upon. The pack being duly shuffled and cut, one card is dealt, face downwards to each person, the dealer himself included. Each player looks privately at his own cards, and places in fornt of it as many counters (within the agreed limit,) as he feels disposed to stake. The amount of the stake is determined by the degree of probability that with a second card, to be afterwards dealt, it will make or nearly approach the number twenty-one (*vingt-un*). The numerical value of the cards is the only point considered, there being no distinction of suits. An ace counts either "eleven" or "one," at the pleasure of the holder, a court card "ten," and all other cards accordig to the number of their pips. The combination of an ace and a court card or ten constitutes a "natural," but twenty-one made by any other combination of cards is equally valuable, save for certain special purposes.

The dealer does not himself stake, but has the privilege, if he thinks fit, of declaring a "double" *i.e.*, of multiplying by two the amount staked by each player. This he can only do immediately after all the players have staked, and before a second card is dealt round. Whether he exercises his option or not will depend partly upon the goodness of his own first card, and partly upon the inference which he may draw from the amount of the various stakes

as to the character of the various cards on the table. An ace is the best card, a ten or court card the next best. We will suppose, in the present instance, that the dealer has *not* doubled. He now deals a second card round. If either of the players finds that he has received a "natural," above described he at once turns up his two cards, and becomes entitled to receive double the amount of his stake. In like manner, if the dealer finds that his own two cards constitute a "natural," he turns them up, and each player (save any one who may already have received a *Vingt-Un*, in which case he is exempt) pays him double the amount of his stake.* If no one has received a "natural!" the dealer asks each player in succession whether he is "content." If the player addressed already holds a number reasonably near twenty-one, say from seventeen upwards, he "stands," *i.e.*, rests satisfied with what he has. If otherwise, he takes additional cards, one by one, until he gets either pretty close to twenty-one, or passes that number, in which latter case he is said to be "over" and at once pays his stake to the dealer. It should be mentioned that all cards after the two originally dealt are turned up, for the information of the table at large. The whole of the players being "content," *i.e.*, having received as many cards as they desire, the dealer turns up his two cards as either "stands" upon them, or draws additional cards at pleasure. Should he go "over," he pays all the standing players the amount of their respective stakes. If otherwise, all the cards are turned up, and all players who have a lower number than the dealer pay him their stakes; while he in like manner pays all who are nearer to twenty-one than himself. If any player or the dealer has exactly twenty-one (of whatever cards composed) he is entitled to receive double the amount of the stake. "Ties" pay the dealer, save, as already intimated, in the case of "naturals."

---

* According to some authorities, if there are two naturals, one turned up by the dealer and only by some other player, the latter merely saves his stake.

If the dealer has [illegible] stakes are paid or received [illegible] receiving four times the amount of [illegible]

If any player's (or the dealer's) [illegible] (*e.g.*, two aces, two [illegible] them, placing the amount of [illegible] each as a separate hand, [illegible] receiving or paying accordingly.

A "natural," [illegible] the deal to pass to the next player [illegible] *round* of a new deal, [illegible] sell his deal if he pleases.

In some companies the dealer is [illegible] *brulé*, *i.e.*, when the pack is [illegible] card, and if it proves to be either an ace [illegible] turn up the top card. [illegible] tural," each player is [illegible] the *maximum* stake. [illegible] proceeds. The privilege [illegible] authorities. It is customary [illegible] last card, which is turned [illegible] on the right of the dealer [illegible] cards already used and [illegible] the dealer as soon as the pack [illegible]

[illegible]

Take the [illegible] of the figures [illegible]

Take these [illegible] a pack. [illegible] 1 and 2. [illegible] these four the [illegible] pack, 8 and 35 [illegible]

them in the same manner several times. At each new shuflle you will have a different order, notwithstanding which, after a certain number, they were shuflled, as may be seen in the following table, in which, after the seventh shuflle, they return to their first arrangement :—

1st,	1	2	3	4	5	6	7	8	9	0
1st suflle,	8	9	3	4	1	2	5	6	7	0
2nd,	6	7	3	4	8	9	1	2	5	0
3rd,	2	5	3	4	6	7	8	9	1	0
4th,	9	1	3	4	2	5	6	7	8	0
5th,	7	8	3	4	9	1	2	5	6	0
6th,	5	6	3	4	7	8	9	1	2	0
7th,	1	2	3	4	5	6	7	8	9	0

To Draw two Figures with Crayon on a Wall, one of which will Light a Taper, and the other Extinguish it.

Draw with crayon two figures on the wall: any you please, such as a man's head and a women's. At the mouth of one you put a little gunpowder, which you fasten or with mouth-glue; at the mouth of the other a bit of phosphorus fastened in the same way. When you take a lighted taper near the mouth that has the gunpowder, the explosion extinguishes it; then taking it near the phosphorus while warm, it lights itself again.

Two Dice being thrown on the Table, to find out the Spots on them without seeing them.

Tell the person who threw the dice to add *five* to double the number of spots on one of them, and then to multiply the whole, by the same number, 5. Make him add to this product the number of stops on the other die; and ask him to tell you the amount of the whole. Subtract *twenty-five*, which is the square of the number five, and there will remain two numbers or figures, of which the one that represents the tens indicates the number of the first die, and that of the units will be the amount of the second.

Example.

We will suppose the throw was 2, 6.

The double of the first is	4
Add	5
Total	9
Multiply by 5	5
Product	45
Add the spots on the second	6
	51
Subtract	25
	26

We know that these two figures, 2, and 6, were those of the throw.

The Automaton Dancer.

As your automaton figures used in the foregoing feats are not to be handled, it may be as well to be ready with a simpler, figure, which you can pass round among the audience.

[illegible]

sung, or played, run the needle through the hole and drop the figure towards the carpet, when it will slide along until the knot stops it. By pretending to beat time with your hands on your knees, you conceal that it is their motion which makes the figures caper to the general amazement.

[illegible]

A Vessel that will let out Water at the Bottom, as soon, as the mouth is Uncorked

Take a tin vessel, perforated at the bottom with several small needle-holes. Plunge it into water with its mouth open, and when full, *while in the water*, stop it very tightly. Whoever uncorks it will be surprised, as the water will spirt out of the small holes on the admittance of air from above.

To Pierce a Board with a Candle.

Put a candle-end in a musket, and an ordinary charge of powder will drive it clear through a plank, not too thick, as quickly as a bullet.